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President's Report

For the year ending
30th June, 1920

1919/1920

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UNIVERSITY OF TORONTO

PRESIDENT'S REPORT

1919-1920

To the Governors of the University of Toronto:

Gentlemen,—I beg to submit the following report on the academic work of the University and University College during the twelve months ended June 30th, 1920.

The total staff of the University and University College numbered 509, of whom 66 were professors, 44 associate-professors, 35 assistant-professors, 78 lecturers and associates (in medicine) and instructors in the Faculty of Education, 286 demonstrators, fellows and instructors with sessional appointments. They were distributed as follows:—

—	Professors.	Associate Professors.	Assistant Professors.	Associates.	Lecturers.	Other Sessional Appointments.
University (Faculty of Arts)....	26	11	16	....	18	77
University College	13	3	7	....	6	5
Faculty of Medicine	15	17	1	9	4	143
Faculty of Applied Science......	9	9	4	....	14	37
Faculty of Household Science ...	......	2	....	....	3	6
Faculty of Forestry	......	1	2	....	....	1
Faculty of Music...............	......	......	....	....	4	......
				Lecturers and Chief Instructors.	Assistant Instructors.	
Faculty of Education	2	1	5	3	17	4
Social Service Courses	Direc-tor. 1	......	Director Field Work 1	....	....	12

In Victoria College there were:

Professors (one in University)........................	13
Associate Professors	5
Lecturers	4
Special Instructor	1

In Trinity College there were:

Professors	10
Lecturers	8

In St. Michael's College there were:

Professors	12
Lecturers	10

I regret to report the death of Dr. R. J. Dwyer, Associate-Professor of Medicine and head of the department of Clinical Medicine in St. Michael's Hospital, who passed away after a long illness on January 26th, 1920. Dr. Dwyer was an unusually skilful physician and teacher.

On the 19th of June, 1920, Dr. Peter Toews, Assistant-Professor of German, died after a long illness. Several years before his death Dr. Toews had withdrawn from the active duties of the University. He was a good scholar and faithful teacher.

At the close of the session Dr. C. K. Clarke resigned his position as dean of the Faculty of Medicine after eleven years of service. His tact, sympathy and interest in the development of scientific medicine made his deanship memorable, and during his tenure of office many developments were initiated which will have most important permanent effects on the advance of medicine in this University.

Dr. J. A. Amyot, Professor of Hygiene, resigned 31st December, 1919, in order to assume the duties of the newly created post of Deputy Minister of Public Health for the Dominion of Canada at Ottawa, to the regret of the University to which he rendered excellent service for twenty-five years.

Dr. G. H. Burnham, Professor of Ophthalmology and Otology; Dr. N. A. Powell, Professor of Medical Jurisprudence; Dr. A. M. Baines, Associate-Professor of Clinical Medicine and Pediatrics; and Dr. H. T. Machell, Associate-Professor of Obstetrics, resigned on the 30th of June, 1920. The University is deeply indebted to all these gentlemen for the long and unselfish service that they have devoted to the advancement of medical instruction and practice through the Faculty of Medicine.

The following new appointments and promotions were made during the year:—

In the Faculty of Arts,—Appointments: C. K. Clarke, M.D., LL.D., was appointed Director of the Psychological Laboratory; Andrew Hunter, M.A., B.Sc., M.B., Ch.B. (Edin.), Professor of Biochemistry; John Macnaughton, M.A., LL.D. (Queen's), Professor of Latin; H. B. Speakman, M.Sc. (Manchester), Associate-Professor of Zymology; Gilbert E. Jackson, B.A. (Cantab), Assistant-Professor of Political Economy; A. C. Redfield, B.S., Ph.D. (Harvard), Assistant-Professor of Physiology; W. H. T. Baillie, M.A., M.B., Lecturer in Histology; T. H. Black, M.A., B.Sc., LL.B. (Glasgow), Lecturer in Roman Law; A. R. Clute, B.A., LL.B., Lecturer in Federal and Constitutional Law; E. H. Craigie, B.A., Lecturer in Comparative Anatomy; G. H. Duff, M.A., Lecturer in Botany; W. A. Irwin, M.A., D.B. (Chicago), Lecturer in Oriental Languages; Herbert Marshall, B.A., Lecturer in Political Economy; W. H. Martin, B.A., Lecturer in Chemistry; J. W. MacArthur, A.B. (Oberlin), M.A. (Wabash), Lecturer in Experimental Biology; G. C. Patterson, B.A., Lecturer in Italian and Spanish; E. J. Pratt, Ph.D., Lecturer in Psychology; and Miss M. M. Waddington, Ph.D., Lecturer in English.

Promotions—F. B. Allan, Ph.D., from an associate-professorship to a professorship in Organic Chemistry; F. B. Kenrick, M.A., Ph.D. (Leipzig), from an associate-professorship to a professorship in Chemistry; A. L. Parsons, B.A. (New York), from an assistant-professorship to an associate-professorship in Mineralogy; G. M. Smith, M.A. (Oxon), from an assistant-professorship to an associate-professorship in History; G. Oswald Smith, M.A. (Oxon), from an assistant-professorship to an associate-professorship in Latin; R. Hodder Williams, M.A. (Oxon), A.M. (Columbia), from an assistant-professorship to an associate-professorship in History; A. G. Brown, M.A. (Oxon), from a lectureship to an assistant-professorship in Ancient History; J. [illegible], Phm.B., M.A., from a lectureship to an assistant-professorship in Electro-chemistry; W. A. Clemens, M.A., Ph.D. (Cornell), from a lectureship to an assistant-professorship in Elementary Biology; A. F. Coventry, B.A. (Oxon), from a lectureship to an assistant-professorship in Vertebrate Embryology; C. N. Cochrane, M.A. (Oxon), from a lectureship to an assistant-professorship in Ancient History; F. C. A. Jeanneret, B.A., from a lectureship to an assistant-professorship in French; W. P. M. Kennedy, M.A. (Oxon), Litt.D. (Dublin), from a lectureship to an assistant-professorship in History; A. MacLean, B.A., from a lectureship to an assistant-professorship in Geology; H. A. McTaggart, B.A. (Cantab), from a lectureship to an assistant-professorship in Physics; M. Moraud, L.ès L., Dip. D'Et. Sup. from a lectureship to an assistant-professorship in French; I. R. Pounder, M.A., from a lectureship to an assistant-professorship in Mathematics; W. D. Woodhead, B.A. (Oxon), M.A. (Alberta), from a lectureship to an assistant-professorship in Greek.

In the Fculty of Medicine,—Appointments: Duncan Graham, M.B., Professor of Medicine; Alan Brown, M.B., Associate-Professor of Medicine in charge of Pediatrics; Perry Goldsmith, M.D., C.M., Associate-Professor of Oto-Larnygology; Gilbert Royce, B.A., M.B., Associate-Professor of Oto-Laryngology; J. G. Cunningham, B.A., M.B., Lecturer in Industrial Hygiene; R. D. Defries, M.D., D.P.H., Lecturer in Hygiene; H. B. Maitland, M.B., M.R.C.S., L.R.C.P., Lecturer in Pathology and Bacteriology; and H. K. Detweiler, M.D., A. A. Fletcher, M.B., R. Jamieson, B.A., M.B., N. M. Keith, B.A., M.D., Clinicians in Medicine.

Promotions—J. G. Fitzgerald, M.B., from an associate-professorship to a professorship in Hygiene; V. E. Henderson, M.A., M.B., from an associate-professorship to a professorship in Pharmacy and Pharmacology; and W. B. Hendry, B.A., M.B., from an associateship to an associate-professorship in Obstetrics and Gynæcology.

In the Faculty of Applied Science,—Appointments: C. H. Mitchell, C.E., LL.D., Dean; S. G. Bennett, B.A.Sc., Lecturer in Commercial Engineering; H. J. Brownlee, M.A., Lecturer in Chemical Engineering; J. W. Melson, B.A.Sc., Lecturer in Surveying; W. E. Milligan, B.A.Sc., Lecturer in Metallurgy; R. C. Mitchell, B.A.Sc., Lecturer in Hydraulics; M. R. Riddell, B.A.Sc., Lecturer in Machine Design; G. H. Wilkes, B.A.Sc., Lecturer in Machine Design; and W. J. T. Wright, B.A.Sc., Lecturer in Drawing.

Promotions—H. W. Price, B.A.Sc., from an associate-professorship to a professorship in Electrical Engineering; E. G. R. Ardagh, B.A.Sc., from an assistant-professorship to an associate-professorship in Analytical Chemistry; J. Roy Cockburn, B.A.Sc., from an assistant-professorship to an associate-professorship in Descriptive Geometry; T. R. Loudon, B.A.Sc., from an assistant-professorship to an associate-professorship in Ferro-metallurgy; A. W. McConnell, B.A.Sc., from an assistant-professorship to an associate-professorship in Architecture; W. M. Treadgold, B.A., from an assistant-professorship to an associate-professorship in Surveying; C. R. Young, B.A.Sc., C.E., from an assistant-professorship to an associate-professorship in Applied Mechanics.

In the Faculty of Forestry, C. D. Howe, M.A. (Vermont), Ph.D. (Chicago), was appointed Acting Dean.

The total number of students registered in the University in 1919-1920 was 5,237, or apart from those registered in the Summer Session and Occasionals in Social Service, 4,870, distributed as follows:—

Faculty of Arts:—	Men.	Women.	Total.
University of Toronto	104	45	149
University College	587	447	1,034
Victoria College	288	212	500
Trinity College	74	49	123
St. Michael's College	119	66	185
Graduate Courses	118	51	169
Faculty of Medicine	1,203	81	1,284
Faculty of Applied Science	815	4	819
Faculty of Education	211	212	423
Faculty of Forestry	48	....	48
Faculty of Music	11	9	20
Department of Social Service	12	343	355
Returned Soldiers' Matriculation Class	172	....	172
Registered twice	36	8	44
	3,726	1,511	5,237

The figures may be further analyzed as follows.

FACULTY OF ARTS.

University of Toronto.

	Men.	Women.	Total.
Teachers' Courses and Summer Session	30	34	64
Occasional Arts Students	11	11	22
Veterinary Students	63	....	63
	104	45	149

University College.

	Men.	Women.	Total.
First Year Undergraduates	279	161	440
Second Year Undergraduates	123	116	239
Third Year Undergraduates	97	102	199
Fourth Year Undergraduates	55	57	112
Occasional Students	34	11	45
Duplicate Registration	1	....	1
	587	447	1,034

Victoria College.

	Men.	Women.	Total.
First Year Undergraduates	94	81	175
Second Year Undergraduates	62	34	96
Third Year Undergraduates	61	39	100
Fourth Year Undergraduates	33	50	83
Occasional Students	39	8	47
Duplicate Registration	1	....	1
	288	212	500

Trinity College.

	Men.	Women.	Total.
First Year Undergraduates	32	20	52
Second Year Undergraduates	20	16	36
Third Year Undergraduates	12	8	20
Fourth Year Undergraduates	10	4	14
Occasional Students	....	1	1
	74	49	123

St. Michael's College.

	Men.	Women.	Total.
First Year Undergraduates	51	21	72
Second Year Undergraduates	27	27	54
Third Year Undergraduates	18	10	28
Fourth Year Undergraduates	15	8	23
Occasional Students	8	....	8
	119	66	185

Graduate Courses.

	Men.	Women.	Total.
Candidates for Ph.D.	30	3	33
Candidates for M.A.	53	33	86
Candidates for M.D.	9	1	10
Graduate Students	26	14	40
	118	51	169

Faculty of Medicine.

	Men.	Women.	Total.
First Year Undergraduates	391	25	416
Second Year Undergraduates	222	25	247
Third Year Undergraduates	175	13	188
Fourth Year Undergraduates	126	10	136
Fifth Year Undergraduates	88	7	95
Occasional Students	10	1	11
Dental Students*	189	....	189
Candidates for D.P.H.	2	....	2
	1,203	81	1,284

Faculty of Applied Science.

	Men.	Women.	Total.
Candidates for Professional Degrees	8	....	8
First Year Undergraduates	401	....	401
Second Year Undergraduates	171	1	172
Third Year Undergraduates	139	1	140
Fourth Year Undergraduates	92	1	93
Students of other Faculties	3	1	4
Occasional Student	1	....	1
	815	4	819

Faculty of Education.

	Men.	Women.	Total.
Students registered	211	212	423

Faculty of Forestry.

	Men.	Women.	Total.
First Year Undergraduates	20	....	20
Second Year Undergraduates	15	....	15
Third Year Undergraduates	7	....	7
Fourth Year Undergraduates	2	....	2
Fifth Year Undergraduates	1	....	1
Sixth Year Undergraduates	1	....	1
Occasional Students	2	....	2
	48	....	48

Faculty of Music.

	Men.	Women.	Total.
First Year Undergraduates	4	....	4
Second Year Undergraduates	1	4	5
Third Year Undergraduates	3	....	3
Occasional Students	3	5	8
	11	9	20

Department of Social Service.

	Men.	Women.	Total.
Students registered	12	343	355

Preparatory Matriculation Class for Returned Soldiers.

	Men.	Women.	Total.
Students registered	172	....	172

The numbers examined in the different departments of the University, including those granted standing for Military Service, were as follows:—

Arts:		
Ph.D.	6	
M.A.	46	
Fourth Year	308	
Third Year	461	
Second Year	572	
First Year	731	
Senior Matriculation	207	
		2,331
Medicine:		
D.P.H.	2	
M.D.	6	
Fifth Year	88	
Fourth Year	130	
Third Year	182	
Second Year	227	
First Year, Five Years' Course	221	
First Year, Six Years' Course	154	
		1,010
Applied Science:		
Professional Degrees	8	
Fourth Year	93	
Third Year	139	
Second Year	164	
First Year	376	
		780
Education		338
Forestry		44
Music		9
Law		18
Degrees in Pedagogy		29
Pharmacy		92
Dentistry		848
Agriculture		59
Local Examination in Music		580
Veterinary Science		4
Social Service		280

The degrees conferred were:

LL.D. (Honorary)	14	
D.Sc. (Honorary)	3	
Mus. Doc. (Honorary)	1	
M.A. (Honorary)	1	
M.H.Sc. (Honorary)	1	
Ph.D.	5	
M.A.	42	
LL.B.	2	
M.D.	4	
D.P.H.	2	
M.B.	74	
B.A.	271	
C.E.	7	
M.E.	1	
B.A.Sc.	93	
D.Paed.	2	
D.D.S.	116	
B.S.A.	58	
B.Sc. (Agr.)	1	
B.Sc.F.	4	
Phm.B.	88	
B.V.Sc.	5	
		795

The outstanding characteristic of the year 1919-20 was the unprecedentedly large attendance of students. The total number of students was 5,237, which was larger than the attendance in the year 1918-19 by 1,881. It is obvious that an addition of nearly two thousand students to the University in one year has placed a heavy strain upon both the administrative and the teaching staffs. This was a feature, however, which was common to the universities of Britain and this Continent, and was due, of course, to the rapidity with which many of those who had been under arms resumed work which had been interrupted, or entered upon an academic course which they had intended to undertake. The most serious interruption was that suffered by boys at school who enlisted before they had completed their studies for matriculation. To return to school after the war was impossible for them; nor were they prepared to take up university work with profit. Hence it became necessary for the University, even at considerable expense, to institute new classes under special tutors in order to prepare returned soldiers for the reduced requirements for entrance into the several faculties. The subjects taught were those of Junior Matriculation, and new classes were formed at different periods, but were all brought to a conclusion in June, 1920. In all, 172 soldier-students were in attendance on these special classes during the academic year, and their work on the whole was most satisfactory.

The large numbers of the regular classes in the University were also due to the presence of about 1,200 ex-soldiers. Their earnestness was very marked, and in spite of the inevitable reaction their work in examinations was surprisingly good. Their maturity and self-control were powerful factors in the life of the University, and notwithstanding the large numbers and the relaxation after the strain of the war the general conduct of the students was good, and was such as to call for no further remark.

One hesitates to use lightly the term "epoch-making," but it is quite appropriate in referring to the opening of Hart House, which was performed by His Excellency the Duke of Devonshire in beautiful weather on Armistice Day, November 11th, 1919. What the University owes to the beneficent founders of this unique and comprehensive establishment by reason of this gift will only be realized after some years, as its effects will be seen in the bearing and character of the students who will have enjoyed the privileges of its use; but even one session has already proved that the life of the men students has entered upon a new period of splendid promise. Undergraduates, graduates and staff share the advantages of this building, and the imposition of a compulsory fee gives every male student the right to equal privileges in it; the opportunities for social intercourse and physical exercise are unsurpassed.

Unfortunately the women students are without any similar headquarters. It is true that in University College the Women's Union under Miss Wrong has been a great boon, but one house cannot serve even as a modest social headquarters for the 450 women students of that College alone, to say nothing of those of other faculties. Under an energetic committee of ladies, consisting chiefly of graduates of the University, an effort has been begun to raise funds for a new Women's Union for University College, but the cost of building is so great that it is doubtful whether it can be erected as soon as the crying need would demand. But the opening of Hart House has only emphasized the longfelt want of a common building for the women of all the colleges and faculties. It should contain gymnasium, swimming-pool, and rooms for such meetings and social gatherings as are shared in by the university women as a whole.

Not the least difficulty encountered by students during the past year was the securing of accommodation in which to live, and this difficulty will continue for some time to come. The Residences for men and women were quite filled, and two houses on St. George Street were purchased to give further accommodation for the women of University College; but great numbers had to be satisfied with inconvenient quarters at high prices. As the neighbourhood of the University changes its character the need of greatly increased residential facilities will become even more urgent than at present.

Many of the returned men would have found great difficulty in carrying on their courses had it not been for the Loan Fund established by the Alumni of the University in connection with the War Memorial Fund. Sustained and repeated efforts were made by the Universities of the Dominion to secure for returned soldiers either grants or loans from the Dominion Government, but to no purpose, with the result that on the whole the student-soldiers suffered more than any other class for their patriotism, inasmuch as they not only lost the years of absence at the war, but the savings also they had made with which to educate themselves. Many found it necessary to postpone or even abandon their courses of study at this time of very high living. The Alumni Loan Fund Committee, however, granted loans without interest to 152 men, aggregating $37,477, and the Board of Governors co-operated by allowing these men the postponement of the payment of fees without interest. Similar loans will be required for at least two years. Thereafter the returned loans will be constituted a Scholarship Fund, from which the dependants of returned soldiers will receive assistance for an academic career.

The Alumni War Memorial Fund has been remarkably successful, some $335,000 having been already subscribed. Part of this will be devoted to the erection of a Gothic Memorial Tower and Screen with the names of the fallen at the south-west corner of Hart House; but the construction will not be proceeded with at present. The securing of this fund has been a powerful factor in rallying graduates of the University round their Alma Mater through their pride in and sympathy with what has been accomplished during the war by her sons. When the memorial volume now being prepared under the authority of the Governors, and soon to be published, appears, the extent of this sacrifice will become more manifest.

One of the pleasantest incidents of the year was the reunion of Applied Science graduates in December, who came from far and near and showed their well-known enthusiasm for and interest in the " School."

This year as never before the graduates of the University have taken a deep interest in its affairs. Of course this was partly due to the great efforts which they put forth to raise the War Memorial Fund, but the privileges of Hart House brought the men together, and at Commencement many interesting reunions were held. A new pride in the University has been created and has found expression and it is hoped that it will rapidly increase.

In the Faculty of Arts the most important event that calls for mention was the creation of a new course leading to a degree of Bachelor of Commerce. The entrance requirements to this course are the successful passing in at least three subjects of honour matriculation, English, Mathematics, and one of German, French, Spanish. Latin is an optional subject. Only the first year of the course has so far been prepared, to come into effect in the session 1920-21. The prescription of work for the second, third and fourth years will be defined in the Calendar for the session 1921-22, and will include advanced work in Economics, Mathematics, and the languages taken in the first year. Instruction will be given also in History, Accountancy, Business Methods, Administrative Efficiency, and Commercial Law. Before the completion of the course of four years a candidate must produce evidence of employment for a definite period in a commercial firm, in public service, or in some business capacity. It is proposed in establishing this course to prepare not only for business and commercial life generally, but also for the Consular Service and the foreign representation of Canadian firms.

The new experiment of a full-time professorship in Medicine, made possible by the gift of Sir John and Lady Eaton, has been carried out during the year with very great success by Dr. Duncan Graham. A reorganization of the medical services of the Toronto General Hospital was effected under Dr. Graham's direction. Four clinicians were appointed as Ward Supervisors, and patients were segregated according to types of disease. Five clinicians specially qualified in laboratory methods necessary for clinical diagnosis and investigations were appointed, and they devoted eight hours a day to necessary examinations of patients. The Outpatient Department was placed under clinicians specially qualified in general medicine. The majority of the teachers in Clinical Medicine are in private practice, but have charge of a certain number of patients in the hospital and teach without salary from four to nine hours a week. Clinical instruction has also been given in St. Michael's Hospital, Western Hospital, and the Hospital for Sick Children. An endeavour has been made by means of weekly meetings of the staff to unify the method and subject matter of teaching.

The sub-department of Pediatrics also was reorganized, with Dr. Alan Brown in charge. He was appointed head of the Medical Service of the Hospital for Sick Children, and devoted the portion of the Sir John and Lady Eaton gift specified for this department to securing skilled secretarial and research assistance as well as supplies. Through his efforts also several valuable donations have been made to equip this hospital with library and apparatus for the better instruction of medical students.

During the winter Dr. George Vincent and Dr. Richard C. Pearce of the Rockefeller Foundation visited the University to study the local conditions in Medicine in view of the offer of $5,000,000 made at New Year by Mr. John D. Rockefeller to Canadian Universities for the promotion of the science and teaching of medicine. The Faculty submitted to them an elaborate report on the development, which, in their judgment, should be attempted during the next few years, and they expressed themselves as pleased with the present standards of the Faculty and its aims.

In this Faculty the pressure of students was felt much more severely than in any other, because for several years soldiers who interrupted their medical studies had been returning, with the result that the final years were much larger than in other faculties. Last session was also the first of the new course of six years, and its opening was awaited with much interest. As the former five years' course was retained for returned soldiers ,there were two concurrent first years, though for the most part with separate courses of instruction. The attendance in the first year of the new six years' course surprised the Faculty in regard to its size, and threw upon the laboratories, class-rooms and staff a load which it was very difficult for them to carry. Indeed, the congestion was such that it will be necessary to limit numbers as soon as possible, as there are not in Toronto sufficiently large clinical facilities to train in the final years the numbers that will be in attendance if present conditions continue. The standard of Junior Matriculation for entrance is too low. Soon it should be raised to Honour Matriculation in at least three subjects, which should be attainable now in the good schools of the Province by average boys at the age of eighteen years. The first year of the new course has so far been satisfactory. The combination of options, such as English, French, History of Science or Mathematics with the three fundamental pre-medical sciences of Chemistry, Physics and Biology has worked well and a high standard was maintained. It seems probable that this course, which in several aspects is unique, will prove to be well designed to turn out a broadly educated as well as an expert medical man.

On Wednesday, October 8th, 1919, Brigadier-General C. H. Mitchell, C.B., C.M.G., D.S.O., gave his inaugural lecture as Dean of the Faculty, taking as his subject " The Future of Applied Science." He has thrown himself with great energy into his work, has rallied his staff round him and is leading the faculty into a bright future.

The attendance of the first year in this Faculty also was extremely large, again the result of the return of the soldier. The securing of accommodation proved a problem, but the erection of the new Electrical and Strength of Materials building promises relief for the ensuing session.

During the year Dr. Howe acted as Dean of the Faculty of Forestry, taking the place of Dr. Fernow, who had resigned at the end of the previous session, and he has fulfilled the duties of the office to the complete satisfaction of the University.

The Graduate work of the University is increasing. The post-graduate fellowships draw each year excellent students from the other Universities of Canada, especially those of the West, but this side of the university life is in need of development. Many more fellowships should be founded, for in these days of small salaries for teachers, scholars and scientists, the promising youth must be attracted by such inducements to undertake the long post-graduate course of three years or more, which is necessary for those who are to enter upon a life of research or academic teaching. Also these fellowships if increased will bring to us numbers from the West who will be living links to bind Canada together. The new universities are an excellent field from which to draw graduate students who will gladly come to us if we can help them financially.

I wish to draw especial attention to the Appendix to this report dealing with

Scientific Research in the University. During the past session more interest has been taken in this essential function of a university than ever before, and there is good reason to believe that soon there will be a large development on this side of our work.

At the close of the session Professor R. M. MacIver withdrew from the position of Director of the Courses in Social Service, which he held for two years. Under him this department made a great advance, and the University owes much to him for the deep interest as well as the great attention which he has bestowed upon this work. I am confident that the work will be fully maintained under the direction of Professor J. A. Dale, who comes from McGill to undertake the direction of this department at the beginning of the academic year 1920-21.

The following benefactions were made to the University during the past year: The first payments of the gift of $500,000 made by Sir John and Lady Eaton for the Chair of Medicine; $10,000 through Mrs. Kilgour of Brandon, Man., to establish a scholarship in memory of the late Colonel John McCrae; $335,000 were subscribed by graduates and friends for the Alumni War Memorial Fund, as already mentioned; Sir Edmund Osler has again contributed $1,000 for special investigations in the Department of Pathology, and $1,000 for two graduate fellowships, and Colonel R. W. Leonard $500 for the same purpose; Sir Joseph Flavelle contributed $1,500 for a graduate fellowship in Oxford; T. M. Porter, Esq., of the University Schools gave $2,000 for scholarships in the University Schools; the late William Ramsay, Esq., $1,000 for a scholarship in the Department of Physics; the Canadian Oral Prophylactic Association $1,500 for Dental Research; a bequest from the estate of the late Dr. R. A. Reeve of $2,000; and the Imperial Oil Company made a grant of $1,000 for Research under Professor J. C. McLennan.

Three special Convocations were held during the year, the first of which was on August 26, 1919, when His Royal Highness the Prince of Wales was graciously pleased to accept the honorary degree of Doctor of Laws; the second on October 14th, 1919, when His Eminence Cardinal Mercier was given the same degree; and on Armistice Day, November 11th, a Military Convocation was held and degrees were conferred upon the following persons in recognition of their services during the war: Major-General Willoughby Garnons Gwatkin, Major-General John Taylor Fotheringham, Brigadier-General Charles Hamilton Mitchell, Professor John Cunningham McLennan, Major Thain Wendell MacDowell, V.C., and Matron-in-Chief Edith Catherine Rayside.

On December 9, 1919, Admiral Lord Jellicoe paid a brief visit to the University and spoke a few words to the students.

Ten Organ Recitals were given by F. A. Mouré, Esq., University Organist, covering the months from November to March inclusive. This series, which is the eighth, was much appreciated and was the most successful yet in point of attendance.

A course of six special lectures on " Some Features of the Prehistoric Period in the British Isles " was given by Sir Bertram Windle, F.R.S., F.S.A., LL.D., who has recently joined the staff of St. Michael's College. On December 12, 1919, Professor A. P. Newton of the University of London, lectured on " Graduate Facilities in the United Kingdom." The Saturday Afternoon Lecture Course was resumed with the following programme: Sir Andrew Macphail, M.D., on " Women in Democracy "; Yone Noguchi on " The Noh Play of Japan "; Professor J. C. McLennan, D.Sc., LL.D., on " Science and its Application to Marine Problems ";

Professor John Macnaughton, LL.D., on "The River Gods"; Professor J. L. Morison, M.A., D.Litt., on "A Scottish Division in Sinai and Palestine"; Professor J. J. R. Macleod, M.B., Ch.B., on "The Principles of Ventilation"; and Senor Jose Pijoan on "Some Recent Advances in Archaeology."

All of which is respectfully submitted.

ROBERT A. FALCONER,
President

October 28th, 1920.

APPENDIX A

(1) Report of the Principal of University College.
(2) Report of the Dean of the Faculty of Medicine.
(3) Report of the Dean of the Faculty of Applied Science.
(4) Report of the Dean of the Faculty of Forestry.
(5) Report of the Dean of the Faculty of Education.
(6) Report of the Dean of the Faculty of Music.
(7) Report of the Librarian.
(8) Report on University Extension Work.
(9) Statement regarding the Biological Museum.
(10) Statement regarding the Geological Museum.
(11) Statement regarding the Palaeontological Museum.
(12) Statement regarding the Mineralogical Museum.
(13) Report of the Director of the Connaught Antitoxin Laboratories.
(14) Report of the Director of the Courses in Social Service.
(15) Report of the Physical Director.
(16) Report on Research.

(1) REPORT OF THE PRINCIPAL OF UNIVERSITY COLLEGE (PROFESSOR M. HUTTON).

The number of students—especially of men—has increased so rapidly with the return of peace that the College has again reached something like pre-war figures. Thus:

1909-1910	1,037
1910-1911	1,086
1911-1912	1,106
1912-1913	1,078
1913-1914	1,027
1918-1919	740
1919-1920	1,047

of whom 600 (roughly) are men (596 to 451 women), a number only exceeded in 1911-1912 and 1912-1913. The influx has inevitably accentuated the difficulties of space; the College lecture rooms are crowded while at the same time the demands upon them from the extraneous departments of the Registrar, Bursar and Superintendent for the same reason become more urgent.

The ultimate solution must be an Administration Building, but in the meantime much space could be gained for the College and some of its present space handed over to the extraneous departments by the addition of a north wing to the Quadrangle.

The increase of numbers has also accentuated the difficulties which attach to the supervision of the social side of college life; the side which bulks so largely in the University of Illinois and in other American Universities. Hart House as a university building is not under present arrangements, available for University College functions: but only the Great Hall of Hart House is large enough for a First Year reception when the first year numbers, as at present, 450 students roughly. The recourse to public halls outside the University, always regarded before as a passing concession to temporary conditions, has once more this year become an unwelcome necessity in connection with the first year's reception: the problem seems not less regrettable than insoluble; nor less insoluble than regrettable.

The figures of the registration of students for each year and their denominations follow:

Students registered in University College are as follows:

	Men.	Women.	Total.
First Year	284	160	444
Second Year	128	113	241
Third Year	94	104	198
Fourth Year	51	57	108
Occasionals	39	17	56
	596	451	1,047

Registration of students in University College as of January 15th, 1920, according to religious denominations is as follows:

Presbyterians	500
Church of England	232
Methodists	173
Baptists	43
Roman Catholic	38
Hebrews	40
Quakers	5
Congregationalists	5
Christian Scientists	3
Adventist	1
Plymouth Brethren	1
Evangelical Christian	2
Lutheran	3
New Thotist	1

The success of Hart House and its manifold attractions have inspired the alumnae and undergraduate women of University College to open a campaign for a similar building for women, to replace and expand the very limited accommodation offered at 85 St. George Street.

(2) REPORT OF THE DEAN OF THE FACULTY OF MEDICINE (C. K. CLARKE, M.D.)

The work of the past session has been unusually heavy owing to the fact that the classes have been greatly overcrowded, as was inevitable, when accommodation was provided for the many returned men.

Then again with the inauguration of the six-year course came new problems and unlooked-for difficulties.

The registration in the first year was so large (416) that for a time it looked as if it would not be possible to make provision for the students in the different laboratories. Room was found for the students in the primary classes, but it is by no means certain that if the majority survive the ordeals of the primary years satisfactory provision for clinic instruction in the final years can be made. This is a practical question not to be forgotten, and it brings to the surface the agitation for higher admission standards and smaller classes. Just how this can be accomplished in a Provincial University offering State education is by no means clear, and yet it is only too apparent that the numbers entering Medicine are greater than the requirements of the country. Possibly the unusual conditions resulting from the war accounted for some of the congestion, but outside of the returned men, the registration was too large. It was prophesied that with the inauguration of the six years' course, with its demands for higher qualifications, the numbers would fall, but this did not happen.

The total registration in all years was 1,082. If these numbers keep up the University will find itself face to face with a difficult problem, both in regard to laboratory and hospital facilities.

The organization of Medicine on a new basis seems to have worked admirably and the teaching in this important department has been well done. In view of the high standards in teaching which have always characterized this department, this is eminently satisfactory.

I have found it necessary to tender my resignation as Dean of the Medical Faculty after twelve years' tenure of the office. Important work in connection with the Canadian National Committee for Mental Hygiene demands so much of my time that I cannot longer carry on the duties of the Deanship with satisfaction. It is with deep regret I forsake a task which has been congenial, and which has been made comparatively easy by the hearty co-operation of yourself and the members of the Faculty.

(3) REPORT OF THE DEAN OF THE FACULTY OF APPLIED SCIENCE AND ENGINEERING (C. H. MITCHELL, ESQ., LL.D.)

The past year has been peculiarly unique in the history of this Faculty. Not only did staff and students enter upon the post-war period of academic revival with its many problems, but there returned to the several senior years a large number of overseas soldiers who had previously had their courses interrupted. In addition to these, the First Year registration, a total of 401, far exceeded previous record. At the opening of the Session, therefore, the Faculty was called upon to deal with a total attendance of 806 in all years, which was considerably over three times the number of the previous year, and on this account it was immediately found necessary to increase the staff by numerous appointments.

The new conditions of Applied Science education imposed by post-war tendencies and the new demands which, both during and before the war technical education was being called upon to fill, have been recognized as large factors in framing the policy to be followed by this Faculty. In common with all University work many phases of Applied Science education are in a transitional stage in this period of construction. The trend of such education has materially altered, and it may now be considered that it has entered upon an essentially industrial period. That this is already reflected in this University can be seen in the following table of registered attendance in the various departments:

Attendance by Departments, Year 1919-20

Department	I Year.	II Year.	III Year.	IV Year.	Total.
Civil Engineering	71	38	35	35	179
Mining Engineering	34	19	12	5	70
Mechanical Engineering	66	30	30	15	141
Architecture	15	3	10	3	31
Anal. Chemistry	......	......	15	4	19
Chemical Engineering	85	40	9	5	139
Electrical Engineering	125	39	26	25	215
Metallurgical Engineering	5	3	3	1	12
	401	172	140	93	806

Recognition of the tendencies and the probable demands of the country has during the year brought various temporary changes in curriculum, which it is expected will become fixed next year after further investigation and trial. Apart from those changes within departmental scope, there have been various additions with a view to broadening the nature of the engineering education not only to better fit graduates for entering wider fields of the engineering profession, but to provide them with that broader education so essential in all professions.

The crowded condition which these large numbers created in lecture rooms and laboratories has fully justified the new building which is now in course of erection for the Electrical Engineering and Applied Mechanics Departments, and it is hoped that this may be available for the coming year. But even with this the urgency will still exist for further accommodation in the next and succeeding years, for it is now evident that the academic year 1920-21 will find upwards of a thousand students registered in this Faculty with the prospect of still more in the following years.

In planning the arrangements for accommodating the attendance expected next year it has been necessary to provide for utilizing every available space and to rearrange time-tables in a radical manner. The space recently occupied by the Soldiers' Civil Re-establishment in the Mining Building will now become available, and the old Y.M.C.A. Building will again be required as during the past year. The large amount of space required for drafting has long been recognized as a difficulty in respect to accommodation, and steps have been taken to reduce the space per student by not only decreasing the allotted table space, but by rearranging time-tables and regrouping so that two students may in many cases use the same table at different periods of the day or week. In the process of regrouping it has been found necessary to divide the junior years into as many as four groups, not only for laboratory work but for lectures, and the time-table rearrangement for this involves the continuation of lectures in the afternoon and the introduction of laboratory work in the morning. Further space and time will be released by the arrangements to go into effect this summer for the field work of the Third Year to be carried out at the Summer Survey Camp at Gelert (fifty miles north-east of Toronto).

The foregoing arrangements for the accommodation for next year's expected attendance will, however, carry the process to the limits of desirable density, and in some cases beyond, even with the employment of the new Electrical Building. As the expectation for 1921-22 and the succeeding years is a still greater attendance in the Faculty, it is therefore strongly urged that still further accommodation be provided and that steps toward that end be taken in anticipation.

The academic feature of the past year has been the performance of the returned soldiers, who composed over fifty per cent. of the attendance in the four years. Their work throughout the year and the results of their examinations indicated that they have been able fully to revive their studious habits after the strenuous years at the war, and in this they have surpassed even the best expectations in their diligence and serious application. Of those of the whole student body in the Faculty who obtained honours in the recent examinations, the returned soldiers comprised 40 per cent. in the I Year, 44 per cent. in the II Year, 60 per cent. in the III Year, and 80 per cent. in the IV Year.

An interesting feature with respect to the composition and the character of the student body in this Faculty during the past year is the greatly increased age of the students in the several years. An analysis of ages shows that the approximate average age of the I Year in October, 1919, was 21.6 years; of the II Year, 22.2 years; of the III Year, 24 years; and of the IV Year, 25 years. It is obvious, of course, that these are largely due to the high proportions of returned soldiers and others whose University courses have been delayed or dislocated. Of the total of 772 undergraduates who wrote on the recent examinations, 394 were returned soldiers apportioned as follows:—I Year, total 376, of which 173 had been soldiers; II Year, total 164, with 82 soldiers; III Year, total 139, with 79 soldiers; and IV Year, total 93, with 60 soldiers.

The pressure of work on the staff and the desirability of broadening some of the departments has brought about the introduction of special lectures by gentlemen outside of the University who are engaged in professional practice. Among these were lectures on Civics and Town Planning by Mr. Thomas Adams, of the Commission of Conservation, Ottawa; on Landscape Architecture, by Mr. H. B. Dunnington Grubb; and on Architectural Subjects, by Messrs. John M. Lyle, W. A. Langton, and other leading architects. It is regretted that Mr. J. J. Traill, Assistant Professor of Hydraulics, is this year severing his connection with the University after fourteen years' service, to accept a post with the Hydro-Electric Commission of Ontario.

The activities of the School of Engineering Research within this Faculty have continued throughout the year despite the difficulties arising from the large attendance of students. The first number of the Bulletin was issued during the year, and given a very wide distribution, and it is gratifying to learn of its appreciation by the profession and the industrial community. Further work in research has been in progress, especially in Electrical and Applied Chemical subjects, and in Aerodynamics, wherein the newly installed wind tunnel has been of considerable value, as well as other of the aeronautical equipment.

It is particularly gratifying that the late Dean, Dr. W. H. Ellis, M.A., M.B., LL.D., remains with the Faculty as Professor Emeritus of Applied Chemistry, and that he is still available for counsel and advice.

(4) Report of the Acting Dean of the Faculty of Forestry (Dr. C. D. Howe).

During the year 1919-1920 forty-eight students have been in attendance in the Faculty of Forestry. Twenty of these were accredited to the First Year, fifteen to the Second Year, seven to the Third Year, and two to the Fourth Year. One student each in the Fifth and Sixth Years of the combined Forestry and Arts course and two occasional students make the total of forty-eight. The largest previous registration was fifty-one in the year 1914-1915, therefore the Faculty has practically resumed its pre-war strength. Thirty-three of the forty-eight students in attendance during the year are returned soldiers, and fifteen of the latter have been previously enrolled in the Faculty.

Two men are to be graduated from the Four-Year Course and one from the Six-Year course. Two of them have been secured by the Dominion Forestry Branch and one by a pulp and paper company. Thirty-nine of the undergraduates are employed in summer work, eleven by the Dominion Forestry Branch, five by the Commission of Conservation, two by the Provincial Forestry Branch, one by the Dominion Entomological Branch, nineteen by pulp and paper or lumber companies, and one by a railway company in surveying work. In the past the chief source of employment has been Government service, but this summer one-half of the men are employed by private concerns, and in addition the five employed by the Commission of Conservation are engaged in work in which private companies cooperate. In fact, we have had more applications from such companies than we could fill. The increasing demand for our students by pulpwood and lumber companies would seem to indicate that the former prejudice against forestry ideas is giving way to the realization of the necessity for the husbanding of our forest resources.

It is the policy of the Faculty of Forestry each year to produce men better trained to meet the requirements of woodland owners, woods managers and owners of large forest industries—and this without foregoing any essential in training in the theory of forestry practice. A great advance in this direction will be accomplished during the coming year, it is hoped, through the acquirement of a forest tract to be used as an experiment station and practice ground for the School of Forestry, since through your interest and co-operation in the matter such an area has been practically assured us by the Provincial Government.

When the permanent practice camp is established we shall present for your consideration plans for short courses to be given practical woodsmen, fire rangers, timber scalers, and others whose work is in the forest, but who lack the necessary educational requirements for a university course in forestry. Hardly a week passes that we do not get inquiries from this class of men. As you know, a reorganization of the methods of handling the Provincial forests has been foreshadowed in the public utterances of several prominent Government officials, including the Prime Minister. When that time comes the Faculty of Forestry should be in a position to render service to the forest protective and administrative staff of the Provincial Government.

With the establishment of the permanent experimental area and practice camp, we shall also present for your consideration plans that we trust will lead to a wider field of usefulness and service for the School of Forestry. One of our graduates has recently accepted a position as Assistant Director of Forestry for New Zealand, and two others are at the present time considering offers of positions in the Colonial Service. There is a growing demand for Canadians in other portions of the Empire, and with an adequate equipment and staff there is no apparent reason why we could not train men successfully to fill forestry positions anywhere in the Empire. We should also attract men from other portions of the Empire to our School.

Our training of men would be more economical and efficient if the standard of material to work upon were raised through making Honour Matriculation the entrance requirements to the Faculty, and we make this a definite recommendation.

Provision should be made for men to specialize in certain phases of forestry work and in related problems. To this end we shall present to you plans for post-graduate courses in such subjects as forest administration, forest mensuration, forest protection, forest ecology, forest entomology, forest fungology.

The importance of the forests and forest products in the economic life of the Province is practically without presentation to the public in the form of museum exhibits. Such exhibits give much space to the economic minerals, yet the forests have contributed four times more revenue to the Provincial Treasury since Confederation than have the mines. There probably has never been a time when an adequate exhibition of Ontario's forest products would have greater educational power than at present. Therefore, we shall bring plans to you for the establishment of a Forest Products Museum.

We wish to express our appreciation of your efforts to obtain better housing conditions and an adequate teaching staff for the Faculty of Forestry, and we shall live in the hope of their consummation when economic omens are more propitious.

You will be interested to know that the members of the Dominion Forestry Branch in Alberta, with whom George E. Bothwell worked, have established a Memorial Gold Medal, annually to be presented to the members of the Third-Year class who attain the highest proficiency in silviculture. We hope eventually to obtain such medals or appropriate memorials for each of the fifteen former members of the Faculty of Forestry who fell in the Great War.

(5) REPORT OF THE DEAN OF THE FACULTY OF EDUCATION (DR. WM. PAKENHAM).

Twenty-five teachers attended the supplementary course for certificates as teachers of Household Science. This registration, added to the registration in the Summer Courses for teachers of Household Science and in the main Session for Specialists in Household Science, is evidence of a very lively interest in this relatively new department in the schools. It is not improbable that the expansion of the department will result soon in courses and certificates in Household Arts as distinguished from the courses and certificates in Household Science. Sewing and its allied arts make as large a demand on the Schools as foods and their allied sciences.

Never has the registration of men and women students in the Faculty of Education approached more nearly an equality than during this session. The presence of about one hundred veterans may explain this. It is not without significance that never have the interest and progress of the student body won more cordial approval from the instructors. The veterans have been good students, and will be good teachers.

The registration (77) of graduates in Arts in the High School Assistants' course begins again to rise. Before the war it reached one hundred. During the war, when men almost disappeared from the course, it sank below fifty. Having regard to the pressing needs of the High Schools, a registration of one hundred or more is much to be desired.

The registration in the courses in Education for the Master's degree in Arts and the Doctor's degree in Philosophy, in whole or part, and in the courses for degrees in Pedagogy, calls attention to the rapidly growing demand in Canada for advanced courses in professional education. This demand is now so varied and so strong that the University cannot afford longer to neglect it in the organization of the teaching staff and courses of instruction of the Faculty of Education. It must act immediately or American Universities will train the educational experts of Canada.

(6) REPORT OF THE DEAN OF THE FACULTY OF MUSIC (DR. A. S. VOGT.)

The registration of students for the course leading to the degree of Bachelor of Music was as follows: First Year, 4; Second Year, 5; Third Year, 3; Occasional students, 8; total, 20.

The number of candidates applying for the Local Examinations during the year totalled 580. Of these 452 entered for examinations in piano playing; two in organ; thirty in singing; three in violin; and ninety-three in the Theory of Music. Successful candidates totalled 514.

A series of eighteen lectures was delivered by the members of the Faculty as follows:

Six by Healey Willan, Esq., Mus. Doc., entitled:

"The Principles of part-writing."
"Modulation."
"Harmonisation of Melodies."
"Chromatic Chords."
"Counterpoint in two and three parts (with special reference to the minor key)."
"Double Counterpoint and Canon."

Four by Albert Ham, Esq., Mus. Doc., F.R.C.O.:

"Latin Church Music by early English Composers."
"Some Adaptations of Plain-Song by Merbecke and Tallis."
"Anthems by English Composers of the 18th and 19th centuries."

Four by F. A. Mouré, Esq.:

"The Rise of Opera."
"Three Personalities:—Spontini, Meyerbeer, Berlioz." (2 lectures.)
"The Spanish and Russian Schools."

And four by H. A. Fricker, Esq., M.A., F.R.C.O., Mus. Bac.:

The Choral and Orchestral Compositions to be performed at the Mendelssohn Choir Concerts on February 23, 24 and 25.
The "St. Matthew Passion," J. S. Bach.

The special series of ten organ recitals given in Convocation Hall during the season by Mr. F. A. Mouré, University Organist, again proved a most important and attractive factor in the artistic life of the University.

(7) REPORT OF THE LIBRARIAN (H. H. LANGTON, ESQ., M.A.).

I beg to submit the following report of the Library for the year ending June 30th, 1920:

Number of volumes added to the Library during the year 4040.

Number of pamphlets added to the Library during the year, 1,290.

Making total contents of the library 160,580 bound volumes and 52,646 pamphlets.

Statistics of the use of the Library by students, with comparisons of the two previous years, are as follows:

	1917-18.	1918-19.	1919-20.
No. of day books	21,203	26,698	41,128
No. of books taken out for the night...	9,698	10,920	16,583
Average number of students at any one time	48	57	77

The increase in the number of students attending the University during the last period over the war period has resulted in a much larger use of the Library, as the foregoing statistics show. For the next few years it is probable that the reading-room accommodation will be sufficient, especially if it becomes possible to convert the large room underneath the present men's reading room into an open shelf reading room common to all readers, as was suggested a year ago. The needs of graduate students for separate reading-room accommodation has also been pressed upon the Library authorities. With the early removal of the University Press and the Students' Book Department from the quarters which they at present occupy in the Library Building, one or possibly both of the large rooms which they inhabit will be available for conversion to reading-room purposes, either for graduate or undergraduate students.

The completion of the metal shelving in the stack room, for which an appropriation was made last year, has been carried out, and the shifting of the books from the overcrowded sections will be undertaken during the summer months. This addition to the shelf-room will probably suffice for the next four or five years. As part of the new shelving, provision has been made on each story of the stack room for additional seating and desk accommodation for members of the Faculty working in the stack room.

The purchase and delivery of books and periodicals to the Library has fallen short of what was expected, chiefly in consequence of the inability of the Library correspondents in Germany to fill the orders which were sent them. Correspondence with a view to renewing relations was begun in July of last year, immediately after the proclamation of the Governor-General allowing communications with the former enemy countries, but, in spite of repeated letters and cablegrams, it has proved impossible up to the present to obtain the back volumes of scientific journals issued during the war years, and even current numbers of the same periodicals only began to arrive at the Library in the month of May.

It is a pleasure to be able to report the increasing number of endowment funds for Library purposes now on the hands of the University authorities. The John Squair French Library Fund was presented by Professor Squair in the year 1915, and purchases from the interest on this fund have been made during the past year for the Department of French. Another endowment for the same Department was made by Dr. A. Hamilton, of Richmond Hill, in memory of his son, to be called the Alexander Edwin Hamilton Library Fund. The interest on the endowment presented by Dr. Hamilton has accumulated since 1917, and purchases therefrom will henceforth be made in accordance with the terms of the gift.

In accordance with a resolution of the Library Committee of November 8th, 1916, an offer of all available duplicates to aid in the restoration of the Library of Louvain University was made to the Committee formed in England for that purpose. A complete list of our duplicates was sent this year to the Librarian of John Rylands Library of Manchester, who had been charged by the English Committee with the transmission of gifts, and about 1,200 volumes were selected by him. These volumes, together with a complete set of University of Toronto Studies, have been shipped to Manchester to be eventually sent to Louvain when the authorities of that University are ready to receive them. Appeals for duplicates have also been received this year from Laval University Medical School and from the University of King's College, Windsor, N.S., which suffered losses from fire. Lists are in preparation and donations will soon follow.

(8) Report of the Secretary of the Committee on University Extension (Dr. A. H. Abbott).

The total enrolment in the courses offered by this Department during the Session 1919-1920 was 167; course leading to the degree of B.A., 70; Correspondence courses preparatory to the Summer Session under the Department of Education, 43; Tutorial Classes, 54. The course leading to the degree of B.A. was made up as follows:

Teachers' Classes 1919-1920 (41 regular, 3 occasional)	44	
Summer Session 1919 (15 Teachers' Classes, 7 occasional)	35	
Correspondence Courses 1919-1920 (16 Summer Session, 6 new)	22	
Total		101
Appearing twice		31
		70

The Teachers' Classes were held as usual throughout the regular session, with an increase of attendance over last year of fifteen. The subjects offered were: Second Year, English, French, Physics; Third Year, English, Political Economy, Chemistry. Thirty-six students wrote on the Spring Examinations, taking in all ninety subjects, with the following standing: 14 Class A, 39 Class B, 28 Class C, 9 stars.

The Summer Session was held from July 8th to August 8th, with lectures from 8—1 daily for six days a week. The following subjects were offered: II, Latin, History, Biology; III, Latin, French, Ancient History, Modern History, Chemistry—the last subject being given upon request of the Teachers' Classes. The attendance was thirty-five, of whom 15 were members of the winter class. Arrangements were made for the accommodation of out-of-town students in Argyle House. Twenty-six students wrote on the September Examinations, taking in all sixty-two subjects, with the following standing: 4 Class A, 36 Class B, 20 Class C, 3 stars.

The Correspondence Courses have been carried throughout the year in the Arts Course preparatory to the Summer Session and in the subjects of Normal Entrance, Faculty Entrance and Commerce preparatory to the Summer Session conducted by the Department of Education. 1,158 bulletins were issued; 598 exercises and essays were received, varying in length from 5—20 pages each. The enrolment was as follows: Arts 22, Normal Entrance 8, Faculty Entrance 29, Commerce 6, total 65.

Two students who have been following the Teachers' Course since the summer of 1916 graduated this spring; one attended in regular session as recommended, for the work of the IV Year; the other, upon completion of the III Year, was granted the IV Year for military service. Two others attended for IV Year work, but had two stars in examination.

To bring the Teachers' Course into harmony with the new Pass Course, the following prescription was agreed upon for the II, III and IV Years:

English.
French.
A Science.
Two of History, Psychology, Political Economy.

Local Lectures.

Lectures were delivered in the following centres: Aurora, Brinston, Guelph, Hamilton, Lansing, North Bay, Peterborough, Seaforth, Smithville.

Tutorial Classes.

Tutorial Classes were arranged in Toronto for men and women engaged in business or teaching who wished to follow a directed course of study in the evening. Three classes were given, two in English and one in Political Economy, with a total enrolment of fifty-four.

(9) STATEMENT REGARDING THE BI LOGICAL MUSEUM (PROFESSOR B. A. BENSLEY).

The following donations have been received by the University Biological Museum and by the Royal Ontario Museum of Zoology:

Mounted specimens of Atlantic fishes and a marine turtle from Mr. W. H. Brouse, Toronto.

A European duck hawk from Mr. A. Rose, Toronto.

A valuable collection of deer antlers and other specimens, the property of the late Mr. W. R. Patton, of Toronto, and presented by Miss A. L. Carlyle.

Several specimens of wild geese and partridge from Mr. G. H. Corsan, University of Toronto.

An egg of an extinct ostrich (second specimen) from Rev. Harold M. Clark, Wuan, Honan, China. The specimen has been presented to the British Museum, London.

A collection of mounted birds from Mr. W. F. Coutts, Toronto.

An Atlantic sturgeon and case, presented by the Board of Trade of the City of Toronto.

A mounted apteryx and a ground parrot, from Mrs. John Lewis, Toronto.

A hawk presented by Mr. J. A. Harvey, Swansea.

Many specimens of larger mammals and birds, including some important additions to the collections, have been received from the Riverdale Zoological Gardens.

(10) STATEMENT REGARDING THE GEOLOGICAL MUSEUM (PROFESSOR A. P. COLEMAN).

The chief expansion of this museum during the year has been the addition of two new cases to the series and the erection of a facsimile of the Niagara escarpment at Grimsby on a scale of one-half inch to the foot. In addition there has been the usual gradual growth as indicated by the list of acquisitions below:—

By Donation:

Zinc ore, Federal mines, Gaspe.—J. C. Biedelman, Esq., Montreal.

Zinc ore, Waco, Missouri.—J. C. Biedelman, Esq.

Graphite, Waltham, Quebec.—J. C. Biedelman, Esq.

Epsomite and ground products, Basque, B.C.—R. Pinchin, Esq., Toronto.

Gold ore, King George V Mineral Claim, B.C.—John Smallwood, Esq., Nelson, B.C.

Cretaceous clay from Matagami River, Ontario, and briquettes of same.—J. Keele, Esq., Ottawa, Ontario.

Hydromagnesite, Atlin, B.C.—Gold Commissioner, Atlin, B.C.

Collection of rocks and minerals.—Heirs of Colonel C. C. Grant, Hamilton, Ontario.

Edition de luxe and folios, Tokyo, Geographical Soc.—Sir Edmund Walker.

By Collection:

Material from Grimsby for construction of facsimile of Niagara escarpment.—Professor Parks.

By Purchase:

Rocks and minerals.—Estate of Henry Montgomery, Esq.
Zinc ores.—Franklin Furnace, N.J.
Polished slabs of decorative stones.
Economic ores and minerals.

(11) STATEMENT REGARDING THE PALAEONTOLOGY MUSEUM (PROFESSOR B. A. BENSLEY).

During the year the large dinosaur collected in Alberta in 1918 was finally prepared and mounted in the gallery. The specimen ranks among the best ever obtained and is the type of a new species. The formal acceptance of this fine addition to the museum by the Chairman of the Board of Trustees was made the occasion of a public meeting on the evening of May 10, 1920.

Some work has been done on the material collected in 1919, more particularly on a fine head of *Monoclonius*. The large collection obtained from the heirs of Colonel C. C. Grant has been arranged and much material from the local rocks at Toronto has been added to the collections.

The more important acquisitions during the year are:—

By Donation:

Orthoceras from China.—Rev. Harold Clark.

Echinoid from Maidenhead, England.—Professor Currelly.

Large collection of fossils and books.—Heirs of Colonel C. C. Grant, Hamilton, Ontario.

Mastodon bones.—Miss M. I. Stewart, St. Catharines, Ontario.

Fossil tree-trunk from Arizona.

By Exchange:

Devonian Fossil Fish.—Buffalo Society of Natural Sciences.

By Collection:

Five skeletons of dinosaurs, more or less complete, Belly River Formation of Alberta.—Professor Parks.

Gryphaea from New Mexico.—Professor Coleman.

Local Fossils from Toronto.—Professor Parks and students.

By Purchase:

Miscellaneous fossils to fill gaps in the series.—Ward's Natural Science Establishment, Rochester, N.Y.

Miscellaneous fossils and books.—Estate of Henry Montgomery, Toronto.

(12) Statement Regarding the Mineralogical Museum (Professor T. L. Walker).

The collections of the University and of the Royal Ontario Museum of Mineralogy have been enlarged during the year by donations and exchange.

The following lists contain the names of our chief benefactors:—

By Exchange:

Roebling, Colonel W. A., Trenton, N.J.
McIntosh, Professor D. S., Halifax, N.S.
Gregory & Co., London, England.
Ward's Natural Science Establishment, Rochester, N.Y.
Cahn, Lazard, Colorado Springs, Colo.

By Donation:

Bateman, G. C., Cobalt, Ont.
Broderick, T. M., Minneapolis.
Burrows, A. G., Toronto, Ont.
Brooks, Reginald, Atlin, B.C.
Corwin, T. J., Merritt, B.C.
Cartwright, C. E., Vancouver, B.C.
Dickie, C. H., Duncan, B.C.
Daulton, T. M., Atlin, B.C.
Ford, Professor W. E., New Haven, Conn.
Ferrier, Dr. W. F., Toronto, Ont.
Geological Survey of India, Calcutta.
Gibbs, F. N., Port Arthur, Ont.
Gordon, S. G., Philadelphia, Pa.
Haultain, Professor H. E. T., Toronto, Ont.
Hall, G. B., Winnipeg, Man.
Horn Silver Mine, Similkameen, B.C.
International Nickel Company, Toronto, Ont.
Johnston, R. A. A., Ottawa, Ont.
King, J. T., Toronto, Ont.
Knight, C. W., Toronto, Ont.
Kee, H. A., Cobalt, Ont.
Kennedy, H. A. G., Cobalt, Ont.
Lacroix, Professor A., Paris, France.
Miller, W. G., Toronto, Ont.
Miles, A. D., Toronto, Ont.
Myfflin, Rollo, Salmo, B.C.
Sime, W. C., Whitehorse, Y.T.
Sands, C. M., Discovery, Atlin, B.C.
Smeeth, Dr. W. F., Bangalore, India.
Starkey, F. A., Nelson, B.C.
Taylor Engineering Company, Vancouver, B.C.
Tyrell, J. B., Toronto, Ont.
Watkin-Brown, W. T., Sydney, N.S.W.
Warford, H. A., Philadelphia, Pa.
Wigglesworth, Dr. E., Boston, Mass.

(13) REPORT OF THE DIRECTOR OF THE CONNAUGHT ANTITOXIN LABORATORIES (PROFESSOR J. G. FITZGERALD).

The year 1919-1920 has been an exceptionally active one in both the Antitoxin and Research Divisions of the Connaught Antitoxin Laboratories.

The production of sera, antitoxins, and vaccines for the Department of Militia and Defence, had been completed but a very few months, when an epidemic outbreak of smallpox occurred in Ontario, chiefly in the City of Toronto. There was, as a result, an enormous demand for smallpox vaccine and the resources of the Laboratories were greatly strained to meet the need. The output of vaccine for each of the months during which the epidemic continued, was almost as great as the production for any previous year since the opening of the Laboratories. Sufficient vaccine for 489,270 vaccinations was distributed during October, November, December and January. The Laboratories were highly commended by the Chief Officer of Health of Ontario in being able to immediately cope with the unprecedented demand for vaccine which characterized the first few weeks of the epidemic. The experience of the Laboratories indicates clearly that on the occasion of an outbreak of smallpox the majority of the people in the community are familiar with, and have faith in, the only effective weapon we possess at present for the control of smallpox.

In connection with the quality of the vaccine the following appeared in the *Evening Telegram,* Toronto, December 18, 1919: "While I have unbounded faith in the Connaught Laboratories, said the Medical Officer of Health (Dr. C. J. Hastings) where the vaccine is manufactured, I have had the tubes of vaccine opened, placed culture plates and put in the incubator. In every instance the vaccine has been found absolutely pure."

During the visit of H.R.H. The Prince of Wales, to the University in August, 1919, the following reference was made to the work of the Laboratories, "But that was not the only way in which the University rendered service to the Empire during the war. A magnificent Antitoxin Laboratory was established, the greatest that was equipped anywhere, and was operated by this University for the benefit of the Allies."

Not only have all the Canadian Provinces been furnished, in part, or in whole with their requirements of Public Health Biological Products during 1919-1920, but the Colony of Newfoundland has also been supplied and in addition a number of the Islands in the British West Indies have obtained from these Laboratories certain antitoxins. Late in the fall of 1919 for the first time antitoxins and sera were shipped to New Zealand for use in that Dominion.

This widening of the sphere of usefulness of the Antitoxin Division of the Laboratories, has been a source of great satisfaction to those responsible for the work.

In April, 1920, a license was obtained from the Treasury Department of the United States, for the exportation into that country, and sale in interstate commerce there, of diphtheria and tetanus antitoxin prepared in the Connaught Antitoxin Laboratories. Before such a license was granted rigid requirements were demanded in the methods used in the preparation of antitoxins, and most searching investigations of all phases of the Laboratories' work undertaken by Officers of the United States Public Health Service. The satisfactory result of this examination of the Laboratories is a source of especial pleasure to the members of the staff responsible for various phases of the work.

The great increase in the total output of diphtheria antitoxin by the Laboratories, is seen in the following totals indicating the output in units for the several years:—

1916.	1917.	1918.	1919.
Units.	Units.	Units.	Units.
218,626,000	304,576,000	275,015,000	375,215,000

The total volumes of diphtheria plasma concentrated in 1917, 1918, and 1919, was 1,425, 1,718, and 2,263 litres, respectively.

The products being produced and distributed at the present time include: diphtheria and tetanus antitoxin, anti-meningitis serum, type I anti-pneumococcus serum, normal horse serum, smallpox vaccine, anti-rabies vaccine (Pasteur Treatment) and anti-typhoid vaccine.

The Research Division of the Laboratories is now almost completely organized.

During the year Mr. P. J. Moloney, M.A., was appointed to the position of Research Chemist in this Division, and has since his appointment, been carrying on fundamental work in the investigation of some of the physico-chemical factors of toxin production by bacteria.

The work of the Research Division for the Department of Soldiers' Civil Re-establishment has been continued by Dr. A. H. Caulfeild, and his colleagues Dr. Ray Hodge, and Dr. D. T. Fraser, and by Dr. H. C. Cruikshank; all of these members of the Department are engaged in research work.

Dr. Defries and Miss Hanna have been engaged in a study of certain interesting points regarding the viability of vaccine virus and the effect of various physical and chemical agents thereon. The Director of the Laboratories has been concerned with the collection and analysis of certain data bearing on deaths from certain of the communicable diseases occurring in the Province of Ontario.

The Connaught Antitoxin Laboratories Research Fund, the income on which is used for the support of work carried on in this Division, has been considerably augmented during the current year.

A very successful meeting of the Honorary Advisory Committee of the Laboratories was held during the year.

The Director of the Laboratories has been appointed by the Governor-General-in-Council, a member of the recently established Dominion Council of Health, the advisory body to the Federal Department of Health, Canada.

The continued hearty co-operation of the members of the staff of the Connaught Antitoxin Laboratories is gratefully acknowledged.

(14) Report of the Acting Director of the Department of Social Service (Professor R. M. MacIver).

There was a very large increase in the number of students, particularly full-time students, as compared with any previous year, there being for the regular session an enrolment of 51 full-time and 304 part-time students. This is exclusive of those attending short-period courses of lectures.

Certain developments were made in the organization of the Department. It was found advisable to divide the work of the Department into a number of sections, each student on entering being required to state a preference for one of these so as to allow for more intensive work in his or her course. The sections are as follows: A. Community Organization; B. Child Welfare; C. Settlement Work; D. Industrial Investigation; E. Mental Hygiene; F. Medical Social Work, and a series of courses was laid out accordingly. This arrangement has worked very well.

In carrying out this development certain additions were made to the staff of the Department, as follows:—

Dr. Eric Clarke was appointed lecturer in psychiatry.

Mr. Norman Leonard Burnette was appointed lecturer in occupational therapy.

Miss Hodgkins was appointed lecturer in recreation, and Miss Kathleen Russell was appointed as supervisor of the students taking the medical social service course.

The increase of full-time students meant a considerable extension of the field work organization, which was superintended by Miss Agnes C. McGregor as Director of Field Work.

No second year course was given during the past session, owing to the small registration. But a fair number of this year's students have enrolled for a two years' course, and this will therefore be in full operation in the coming year.

The plan followed in the previous year of inviting well-known authorities to give special lectures on various branches of social service work was continued. These lectures were held in the Physics Building and attracted large audiences.

With the co-operation of the National Committee for Mental Hygiene a special two months' course in mental hygiene social work, intended for those who had already graduated as nurses or social workers, was put on, and was attended by 23 students. The courses of lectures for voluntary workers were arranged during the year, one at the request of the Big Sisters' Association, there being an enrolment of 29 members, the other at the request of the Neighbourhood Workers' Association, there being an enrolment for this course of 112 members, representing 42 different social agencies.

In relinquishing the post of acting director I desire to record my conviction of the growing value of the Department in training students and setting standards for social work throughout Canada. That this service is appreciated is evidenced by the demand for the graduates of the Department which now comes from all over the country. I desire also to express my indebtedness to the staff and lecturers of the Department for their ungrudging and enthusiastic co-operation, and to the various social agencies of the city for their invaluable aid in providing facilities for the training of the students in practical work.

(15) Report of the Physical Director (Dr. J. W. Barton).

The Academic Year 1919-20 will be memorable for the revival of Intercollegiate Athletics after an interregnum of four years of war. It was inevitable that the year should be one of reorganization, and, to a certain extent, experiment. The loss of so many of our finest athletes during the war, the majority of whom would have been the senior men to carry on Varsity traditions from year to year, meant that new conditions would have to be faced. It meant that a whole generation of University life had come and gone since athletics were suspended at the close of the session of 1914-15. Taking all these facts into consideration, the results of this year can be looked upon with satisfaction and great encouragement for the years to come.

This year marked the beginning of compulsory physical examination and physical training, and the results surpassed even our expectations. Also it brought to light the most interesting fact that 75 per cent. of our students are in Category

"A," that is, physically fit men, 13 per cent. are "B" men, and 10 per cent. "C" men, leaving 2 per cent. as temporarily or permanently unfit.

The compulsory physical training of the 1st and 2nd years worked out very satisfactorily, as the students in Category "A" were allowed to choose their form of exercises or athletics. Students in Category "B" were allowed to choose within certain limits and students in Category "C" took the form of exercise prescribed for them by the Physical Director.

The arrangement of our gymnasia, with special rooms for boxing, wrestling, fencing, basket and base-ball, and the large gymnasium for class and apparatus work is unique and proved adequate for the unusual demands made upon our space. The University of Toronto is the only University to my knowledge with this excellent arrangement. Our swimming pool is now the finest in Canada and, although we have an unusually strong swimming team, which was fortunate enough to win the Inter-collegiate Championship, nevertheless Mr. Winterburn, our Swimming Instructor, placed particular emphasis on teaching beginners to swim. One hundred and seventy-six students were taught to swim. The work of the Gymnasium Instructors, Messrs. D. M. Barton and F. H. Blake, was of very high order, and we are fortunate indeed in having such experienced men.

Interfaculty contests were the largest in our history. While we are very anxious to win Intercollegiate contests, the real value of our work is in the large number of students that are engaging in inter-faculty competition. The Mulock Cup was again competed for, for the twenty-sixth year in succession. Sixteen teams were entered, and nearly 400 players took part, the group winners being O. A. C., Junior Meds., Junior Dents., and Trinity. Junior Meds. won the cup by decisively defeating O. A. C.

The Track Meet was the largest ever held in the history of University athletics, there being close upon 200 entries in the Track and Field events and 100 men taking part in the Push-ball contest. The competitors were well distributed through the Faculties, and several long-standing records were broken. S. P. S. took first place with 31 points, and Meds. second place with 27. K. L. Carruthers, Applied Science, beat the record for the 120 yards hurdle (established in 1909 by L. A. Wright) by 3/5 seconds, getting a new record of 16 3/5 seconds.

R. S. Foster, Vets., made a new record for throwing the discus of 112 ft. 9 in.

In the basketball competition for the Sifton Cup, no less than eighteen teams were entered, comprising over 250 players. Senior Meds. won the championship by defeating Victoria.

In Interfaculty hockey for the Jennings Cup eighteen teams were also entered, Junior Meds. winning the championship by defeating Victoria, the runners-up. Nearly 300 men participated in this series.

There were about 300 students engaged in the boxing, fencing and wrestling and 76 entered the Senior competition, which was the largest in University history.

We were unusually successful in our Intercollegiate contests. In rugby, McGill won the Senior Intercollegiate Championship; Varsity the Intermediate, and O. A. C., the Junior.

The Track Meet should have come to Toronto this year, but, in deference to McGill's wishes, it was held in Montreal to mark the opening of the new Molson Stadium. McGill won the championship by making a clean sweep of the track events, although Varsity and Queen's were easily the best in the field events.

The harrier meet was held in Montreal and was won by McGill by the close score of 25 to 23.

Varsity won the Intercollegiate Championship in soccer, tennis, senior hockey, junior hockey, basketball, boxing, fencing and wrestling, and swimming, that is, Varsity won six out of ten senior contests. March sixth was the biggest day in our Intercollegiate history. The Senior Hockey and Basketball teams defeated McGill at Ottawa, the Boxing, Wrestling Club defeated Queen's and McGill at Kingston and our Junior Hockey Team defeated Queen's at Trenton. The intermediate hockey was won by R. M. C. and the water polo by McGill. Varsity, by winning the senior hockey, represented the Intercollegiate in the contest for the Allan Cup, defeating the Quebec champions in the preliminaries, the O. H. A. champions in the semi-finals, and were beaten in the finals by the Falcons of Winnipeg.

(16) RESEARCH IN SCIENTIFIC DEPARTMENTS.

For a number of years Research has been conducted in the University, apart from that carried on by individual members of the staff, through Special Funds. In the year 1912-13 a Medical Research fund was established through private gifts which over five years amounted to nearly $50,000, and a large amount of valuable investigation bearing mainly on clinical medicine was conducted especially by younger members of the staff. Also through munificent annual gifts from Sir Edmund Osler it has been possible to conduct special investigations in Pathology.

One purpose of the erection of the Connaught Antitoxin Laboratories in 1917 through the generosity of Colonel A. E. Gooderham was the development of research into problems of Hygiene, Preventive Medicine and Public Health, especially to provide means whereby "the incidence of and mortality from communicable diseases may be lessened." With this end the proceeds, arising out of the manufacture of sera and antitoxin, have been placed in a Special Research Fund which now amounts to $100,000. In addition the Provincial Government has voted $3,750 a year for ten years to be spent also in research into these problems. The chief investigations in this Department have dealt with influenza and army cases of tubercular disease.

In 1916-17 a Special Fund of $15,000 was established by the Board of Governors, part of which was devoted to investigations in Medicine chiefly arising out of physiological and pathological conditions connected with the functional re-education of returned soldiers in Hart House; and the rest was set aside for a School of Engineering Research in the Faculty of Applied Science, which had as its object partly the training of men for research and partly actual investigation into problems of Engineering and Applied Chemistry.

Further, in the year 1919, again through the generosity of Colonel A. E. Gooderham, a finely equipped laboratory was placed at the disposal of the University for the purpose of conducting investigations in the process of fermentation, and Mr. H. B. Speakman was made director of the laboratory.

A great step in advance was taken in the last academic session, owing mainly to the efforts of the Royal Canadian Institute through the leadership of Professor J. C. Fields, F.R.S., when public attention was called to the necessity of research on a large scale both in the Universities and the industries, and the Government approved an addition by the Governors of $60,000 to the estimates for purposes of scientific research. This has been distributed after conference with a special research committee to best meet the needs and opportunities of the different departments.

PHYSICS, UNDER DIRECTION OF PROFESSOR J. C. McLENNAN, F.R.S.

1. *Helium.*—Its production and purification, its use as a material suitable for employment in the construction of electric lamps. Progress was also made in an investigation looking towards its liquefaction for the purpose of studying the properties of bodies at extremely low temperatures.

2. *Spectroscopy.*—In this field the spectra of various elements have been extended down into the extreme ultraviolet.

Also a beginning was made in working out the series spectra of lead, tin, and thallium from absorption phenomena; also two spectographs were devised and constructed for work in the extreme ultraviolet region.

3. *Ionisation Phenomena.*—In this field progress was made in determining the manner in which ionisation occurs in the vapours of Hydrogen and Helium.

4. *Piezo-electric phenomena.*—In this direction an investigation was carried through on the measurement of pressures generated by the explosions of mixtures of various kinds of gases.

5. *Diffusion Phenomena.*—In this line of investigation the rate of transfusion of Hydrogen and of Helium through various types of balloon fabrics and thin water films has been determined.

6. *Mobilities of ions.*—Here a determination of the mobilities of ions produced in Helium at exceedingly high pressure of alpha rays was effected.

7. *Properties of fused mixtures of mica and various elements.*—This investigation was a continuation of one begun under Dr. McLennan in the Admiralty and it has been shown that it is possible to make a mixture, by fusing mica, copper, and other elements, which has an exceedingly high temperature coefficient of resistance. This will no doubt lead to the use of this material as a means of protection against fire. There are also other directions in which this discovery will have application.

8. *Colloidal Solutions.*—In this field, which is followed up chiefly by Professor Burton, very considerable progress has been made in working out the properties of colloidal solutions.

9. *Practical Mechanics.*—In this field, which has been worked at especially by Dr. Satterly, progress has been made in working out methods for the elucidation of problems of impact, harmonic motion and elasticity, on the use of planimeters and in the practical study of the catenary.

For papers see Appendix E, "Publications."

A paper is being prepared by Mr. H. R. Foreman on his Piezo-electric studies on Explosion Pressures. This represents the work carried through by him.

GEOLOGICAL RESEARCH CARRIED OUT IN 1919 BY PROFESSOR A. P. COLEMAN, F.R.S.

Part of June, the whole of July and August and part of September, 1919, was devoted to a study of the Pleistocene Geology and Physiography of the Gaspé Peninsula. A region previously unmapped was explored and a sketch map prepared, showing mountains several hundred feet higher than had formerly been reported on the Shickshock range. Many observations were made as to glacial geology, soils, old beaches, etc. A paper has been published on the results—"Extent and Thickness of the Labrador Ice Sheet"—as a Bulletin of the Geological Society of America; and a general report on Gaspé is to be published soon by the Geological Survey of Canada, as the result of the work of the summer of 1919 and also of the previous summer.

The amount of the grant for 1919 was $600, all of which was expended in travel or necessary aid in working out the results of the exploration.

PALAEONTOLOGY, UNDER DIRECTION OF PROFESSOR W. A. PARKS.

(A) Collections have been made at various points on the Humber and Don Rivers, from the Etobicoke, Weston, the prison farm, and points on the Rouge River. These collections have been of great use in the preparation of a report now being published by the Bureau of Mines of Ontario dealing with the fossil Pelecypoda of our rocks; they will also serve for forthcoming reports of a like nature on the other classes of organisms. Another result is the discovery of hitherto unrecorded exposures of Utica shales on the Rouge River with some very rare fossils which I am now figuring for publication.

(B) Part of the grant was used for the financing of an expedition to the Red Deer River, Alberta.

The expedition was very successful and yielded the following results:—

(1) Complete head and most of the skeleton of a new genus and species of crested trachodont dinosaur. The head with crest measures six feet five inches in length and is of a very different type from anything previously discovered. This specimen will serve as material for an important investigation with resultant publication, and, in my opinion, is alone a thorough justification for the grant.

(2) Two small trachodont dinosaurs without heads. These may or may not prove to be new species.

(3) One skull allied to Corythosaurus, possibly a new species.

(4) One skull, probably Stephanosaurus.

(5) One side with head of a plated dinosaur. Any fragments of this type of dinosaur are of great value and in all probability the find will prove of great interest to science.

MINERALOGY, UNDER DIRECTION OF PROFESSOR T. L. WALKER.

The money provided for the Department was spent for the following purposes:

1. The engagement of a Research Assistant to take some of the elementary routine work in the Department so as to secure more time for research for the regular members of the staff.

2. Purchase of apparatus to enable us to take up investigations in the examination of opaque minerals in reflected light. This apparatus was received in May. Mr. Thomson, lecturer in this Department, has been encouraged to prepare himself to conduct such investigations.

3. Employment of a chemist to assist in the chemical analysis of minerals. This was not very satisfactory as it was difficult to secure a suitably trained man on such short notice.

As a result of the freedom allowed by the assistance obtained in this way the members of the staff were able to complete and prepare for publication the following papers:—

Professor Parsons:

1. Thunder Bay—Kenora Line and Lakes Kashaweogama and St. Joseph—Ontario Bureau of Mines.
2. Calculation in the Triclinic System, illustrated by Anorthite from Vesuvius—*American Mineralogist.*

Mr. Thomson (with V. Goldschmidt):

Phosgenite from Tsumeb, Ambo-Land, South-west Africa—*American Mineralogist.*

Dr. Walker:

1. Bornite from Usk, B.C.—*American Mineralogist.*
2. Allemontite from Atlin, B.C.—*American Mineralogist.*
3. Skutterudite from Cobalt, Ont.—*American Mineralogist.*

In addition to the above, Mr. T. L. Gledhill, the Research Assistant, conducted some investigations as to the nature of the Black Sands from the Atlin gold fields. His results were embodied in a thesis submitted for the master's degree.

Greater advantage would be obtained from this fund if the appropriations were announced earlier. This year two suitable assistants were tentatively engaged by me, but as the summer advanced I was obliged to release them in the middle of August to take up appointments in American Universities.

The particular field for members of our staff is the advancement of our knowledge of Canadian mineral resources. This means the investigation of new or complex material and the recording of the results in mineralogical publications where they will be easily accessible to all interested. In the future a grant for purposes of publication would be very desirable.

Chemistry Under Direction of Professor W. Lash Miller.

Of last year's grant for research in Chemistry, $2,000 was expended in salaries, and the remainder, about $4,000, on apparatus. The greater part of the apparatus money went towards building a 200 kilo-watt transformer and regulators so that the alternating current of the Hydro-Elecric might be available for electric furnace work; part was used to provide apparatus for the use of Professor Ferguson during the present winter; and a little was spent on apparatus and material for the research work under way.

Owing to the unexpectedly large undergraduate enrolment in the faculties of Medicine and Applied Science, and to the impossibility of obtaining assistants in any other way, the offer of Mr. T. C. McMullen (who came with a research bursary from the Hon. Adv. Council) to give up his bursary, was accepted. Mr. M. E. Smith and Mr. N. A. Clark (originally appointed half-time assistants) relinquished their claim to free time for research; and all three worked as full-time assistants with the undergraduate classes. Although their days were fully occupied with teaching, all three came to the laboratory at night, and made a good beginning at research work which they are now continuing under more favourable conditions. Mr. W. A. Lawrance, with a bursary from the Hon. Adv. Council, was the only full-time research student in the Department.

In spite of these circumstances, a good deal of work was accomplished. Five papers were published in the scientific journals, giving the results of experimental research, viz.:

W. H. Martin: "The scattering of light by dust-free liquids;" Jour. Phys. Chem. XX, 24, 478, June, 1920. The experimental results recorded in this paper are a continuation of work begun in 1912 by Mr. W. J. Fawcett and Mr. W. H. Martin under the direction of Professor Kenrick, and published Trans. Roy. Soc. Canada, 1913; the experiments are being continued by Mr. Martin and Mr. Lehrman during the present winter.

W. A. Lawrance: "Friedel and Crafts' Reaction—nitro-phthalic anhydrides and acetylamino-phthalic anhydrides with benzene and aluminium chloride;" Jour. Am. Chem. Soc. 42, 1871, September, 1920. This is the second of a series of papers on Friedel and Crafts' Reaction, containing the results of experimental work done under Professor Allan's direction; the first: "Friedel and Crafts' Reaction—the preparation of orthobenzoyl-benzoic acid and benzophenone," by C. R. Rubidge and N. C. Qua, was published in the same journal in 1914. Messrs. Smith, McMullen, Stephens and Lorriman are at present engaged in further research on the same reaction.

J. McKelleher: "Some phenomena observed in electric furnace arcs;" Trans. Am. Electrochem. Soc. 38, September, 1920. The experiments with direct current furnaces here described will be continued this winter with alternating current, when the transformer now being installed is in working order; in this work Mr. McKelleher will be assisted by Mr. Westman.

W. Lash Miller: "Toxicity and Chemical Potential;" Jour. Phys. Chem. 24, 562, October, 1920.

J. S. Lemon: "The toxicity towards anthrax and staphylococcus of solutions containing phenol and sodium chloride;" Jour. Phys. Chem. 24, 570, October, 1920. These two papers are the first of a series giving the results of Physico-chemical experiments on the behaviour of anthrax staphylococcus and yeast towards various poisons; other members of the series have been accepted for publication and will appear this winter. At present Messrs. Clark, Lucas, Leaf, Eldon and Miss Roberts are continuing the experimental work.

In addition to these publications an account of the work of Messrs. McMullen and Smith was read before the May meeting of the Roy. Soc. Canada, by Professor Allan; that of Mr. A. L. Marshall was embodied in a thesis which was accepted for the 1851 Science Research Scholarship and Mr. W. R. Fetzer's work on the determination of sulphur in complex mixtures was sent to the Mellon Institute for comparison with results obtained in the laboratories there.

BIOLOGY UNDER DIRECTION OF PROFESSOR B. A. BENSLEY.

Owing to the teaching demands which the staff had to meet last year the Department requested only a small appropriation out of the Research Fund, amounting in all to $300. Certain work of an experimental nature bearing on the fundamental nature of living matter was then in progress, for which apparatus and chemicals not previously in the possession of the Department were obtained. Professor Coventry was able to put forward his research on experimental modiciation of growth, utilizing fishes and amphibians for the purpose. Material is available only in the spring and consequently this work is held over as regards its completion until the early part of next year. Mr. J. W. MacArthur completed a piece of work of some scientific importance on the reaction of lower organisms to chemical stimuli the results of which have been incorporated in a paper to the Journal of General Physiology.

(1) We are going ahead with our plan for the organization of a fisheries laboratory, using the research fund as a basis. We should state, however, that we hope for support from the Government of a project which bears on the aquatic resources of the province and that a permanent organization would demand some formal and separate arrangement for its support.

(2) Research having relation to agriculture, but of a higher scientific order, is practically non-existent in the University proper. We shall have lost a rare opportunity if we fail to organize Bacteriology and Zymology on a broad foundation, to establish Genetics or Scientific Breeding on both plant and animal sides, and re-direct some of the research in Chemistry and Biochemistry along lines supportive of agriculture.

BOTANY UNDER DIRECTION OF PROFESSOR J. H. FAULL.

The special appropriation for research granted to the Department of Botany was expended in aids to individual investigators and on apparatus and supplies as follows: Mr. H. B. Sifton, M.A.; Miss M. E. Currie, M.A., $1,000; Miss C. W. Fritz, M.Sc., $300; apparatus and supplies, $1,200.

Mr. Sifton came to us from the Seed Branch of the Department of Agriculture, Ottawa, for the express purpose of completing researches on poisonous plants and fodders especially with reference to veterinary science. He has been enabled through the grant extended to him to make substantial progress in assembling data for the publication of a book on this subject. There is such an insistent call from time to time for information on the matters involved in his investigation that facilities should be afforded for its completion.

Miss Currie has been working on the slime molds—a group of organisms of much interest from the standpoint of both pure and applied science. She has in the course of the last year published her first paper on this subject—a paper that has already won recognition: "A Critical Study on the Slime-Molds of Ontario." Trans. Roy. Can. Inst., Vol. XII, pp. 247-308, plates VIII-X, Toronto, 1919.

She has been enabled to continue investigations on their physiological behaviour, especially their parasitic relationships. It is becoming evident that these organisms exhibit a destructive role with regard to both bacteria and fungi.

Miss Clara Fritz has been determining cultural diagnostic features of the timber-destroying fungi—means of ready recognition from simple laboratory tests of the identity of destructive heart rot and other timber-destroying fungi. The aid received by her has enabled her to extend her investigations for a period of three months beyond the time provided for by a Dominion Research Scholarship. She is continuing these important researches with very considerable success and under the same auspices as last year.

Directly or indirectly through some class assistance given by Miss Currie and from apparatus and supplies purchased, the benefits of the Research Fund have been manifested by progress in such additional researches as studies on the sexuality of the fungi (a preliminary paper of which has just been published by Mr. G. H. Duff) and on the physiology of the fungi.

BIOCHEMISTRY UNDER DIRECTION OF PROFESSOR A. HUNTER.

The Department has begun a number of investigations dealing with the general subject of the Chemistry and Biochemistry of Proteins. The specific problems attacked under this heading are as follows:—

(1) The character of the amino acids and polypeptides liberated during the early stages of pancreatic digestion, together with the order and rate of their appearance.

(2) The characterization of the individual proteoses produced from protein in gastric digestion.

(3) The determination of the rate at which during acid hydrolysis of protein the products acquire the property of producing shock when injected into animals; with the object of defining more precisely than has yet been done the nature of the shock-producing substance.

(4) The study of the use of arginase in determining the arginine content of proteins.

On these investigations the first is the only one which has been under way for any length of time, and the only one on which it is possible to report as yet definite progress. It has been shown that it is possible to apply to the problem the butyl-alcohol extraction method of Dakin; and its use has enabled us to isolate a new group of digestion products, apparently polypeptide in nature, the study of which is likely to occupy us for a considerable period to come.

The other researches are as yet in their initial stages only, and it would be premature to make any statement regarding their probable outcome.

The grant was expended entirely upon the purchase of necessary apparatus and chemicals.

PHYSIOLOGY UNDER DIRECTION OF PROFESSOR J. J. R. MACLEOD.

Research.—Research in the Department has been undertaken by the aid of funds derived from two distinct and separate sources—one from the Research Fund of the President of the University, and the other from the Research Fund of the Medical Services, Department of Militia and Defence.

Research Fund of the President of the University.—Researches made possible by this fund have been as follows:—

1. Completion of work on The Influence of Alpha and Beta Emanations on the Eggs of Nereis, by Professor A. C. Redfield. Assistance in this case was afforded by the employment of a statistician of the Mathematical Department. Paper submitted to *Journal of Physiology,* Cambridge, England.

2. The Behaviour of Lactic Acid in the Blood in Conditions of Shock, Asphyxia and Anoxaemia. I have been engaged in this investigation off and on for several years, and during the present one have obtained results which I think will show quite clearly the precise conditions under which lactic acid is formed. The investigation entails considerable expense, and could not have been undertaken satisfactorily without the assistance of the Research Fund. Paper submitted to *American Journal of Physiology,* September, 1920.

3. Behaviour of the Respiratory Centre after removal of the Higher Portions of the Brain, also a course of researches extending over several years. Several of the results have already been published, and it is hoped that a complete and comprehensive report of the work will be ready for publication this summer. More work could have been done on this particular research had the necessary technical assistance been available.

4. Investigations of the Disturbance of Carbohydrates in the Tissues and Fluids of Various Marine Invertebrates and Fishes. Material for this investigation was collected at the Marine Biological Station of the Canadian Fisheries Board at

Nanaimo, B.C. A certain amount of material was investigated at the Station by biochemical methods, the apparatus and equipment being that of this Department of the University; the rest of the investigation was done in this Department by Messrs. R. S. Lang and Leslie Kilborn, who were paid for their work out of the research grant. The results of this research have been published in two papers in *The Quarterly Journal of Experimental Physiology.* It is expected during the forthcoming summer months to employ at least Mr. Kilborn and perhaps one other student in work of the same character.

5. An Investigation into the Disturbance of Carbohydrates in the Heart Muscles as Compared with that in Other Muscles of the Mammalian Body. This investigation is being made by Mr. D'Arcy Prendergast under myself. The expenses, both for material used, and for the payment of Mr. Prendergast are made from the Research Fund. It is impossible as yet to say what the outcome of this research may be. Paper on "Periodic Breathing," submitted to *American Journal of Physiology.*

6. An Investigation into the Possible Influence of the Rare Gases of the Atmosphere on the Physiological Condition of Animals. This investigation is being undertaken by Dr. E. Fidlar, who is devoting his entire time to the work. Dr. Fidlar had a previous training in laboratory work in various institutions, and has been appointed in this Department to a Fellowship paid out of the Research Fund. All the materials used in this research are also paid from this fund. The work has progressed favourably, but no results have as yet been obtained. The Laboratory is to be considered fortunate in having a man of Dr. Fidlar's type available to undertake this extremely difficult and very important research.

Research Committee of the Department of Militia and Defence. The work under this Committee is being done partly in this Laboratory, and partly under the supervision of Professor F. A. Hartman, in rooms which have been assigned for use in this connection, in the basement. The work undertaken in the Physiological Department has been placed under the immediate supervision of Capt. N. B. Taylor, who has been assigned for this purpose by the Surgeon-General, and is on full army pay as a captain. The researches in progress under this Committee in the Department of Physiology are as follows:—

1. Measurement of Blood Flow through the Hands under Varying Conditions, and the Influence on this Blood Flow of Massage and other therapeutic measures. This research is proving of great interest, but it is impossible at present to state whether the results will be of great practical value.

2. An investigation into the Nature of the Spread of Temperatures through Tissues of Living Animals, during the application of Heat or Cold, Locally on the Surface. The practical application in this research is of course in connection with the principles underlying treatment by thermic measures.

3. An investigation into the Effect on Muscles of Electrical Shocks from Condensers. This research is under the special direction of Professor Gilchrist of the Department of Physics.

ZYMOLOGY UNDER DIRECTION OF PROFESSOR H. B. SPEAKMAN, M.Sc.

During the past year our work has been concerned with the production of acetone and butyl alcohol by fermentation methods on an industrial scale, and also with the biochemical mechanism whereby the organism is able to produce these organic compounds from starch. The following papers have been published in the various journals:—

"The Production of Acetone and Butyl Alcohol by a Bacteriological Process." J. Soc. Chem. Ind., 1919.

"Biochemistry of the Acetone and Butyl Alcohol Fermentation of Starch by Bacillus granulobacter pectinovorum." J. Biol. Chem., 1920.

"Seed-culture methods in the Production of Acetone and Butyl Alcohol." J. Ind. and Eng. Chem., 1920.

"Gas Production during the Acetone and Butyl Alcohol Fermentation." J. Biol. Chem., 1920.

We are in the fortunate position, owing to the fact that our main problem is of interest and of great importance to both groups, of carrying on investigations, the results of which may be considered from the industrial and theoretical standpoint. I shall discuss our work in brief from the industrial standpoint.

During the last twenty years biological methods have been becoming more and more prominent in manufacturing industries. Various organisms have been shown to produce compounds which are of economic value, and it has been the ambition of the industrial chemist to replace the costly and complicated methods of organic and inorganic chemistry by the simpler and cheaper methods known to the biologist. I need only mention the work done in France and England in connection with the synthesis of rubber, and the magnificent work in Toronto during the war in the production of acetone, a vital necessity in the production of munitions. At the present time owing to widespread legislation in connection with the manufacture of alcoholic beverages the supply of fusel oil on this continent has fallen to an almost negligible amount. At the same time the demand has been steadily increasing, and directly owing to work done in University laboratories, here and elsewhere, industry has now, not a substitute but a superior article in butyl alcohol. In this connection I should like to state that the first paper published from the Department has been translated by M. Andre Dubosc, the distinguished French chemist, and re-published in his journal. Recently I also received a request from Howard Murray, Esq., of Montreal, that this paper and the third be incorporated in the forthcoming history of the work of the Imperial Munitions Board, Ottawa.

During the year several communications have been received from firms which are interested in this branch of industry. One of them, The Atlas Powder Co., Ltd., of Philadelphia, requested that one of their research chemists be allowed to work in the Department on fermentation problems. The firm has not only paid the expenses of the research but in addition the connection has been valuable to the Department owing to the fact that they have freely placed at our disposal the vast amount of technical information which such a large concern has accumulated. I only hope that in the near future we may be able to assist in a similar way some of the firms operating in this Province.

In the second place, I wish to bring to your notice the importance of the work from the more general scientific standpoint. We are considering a biological phenomenon which involves the degradation of starch by a living cell, with certain end-products. The schools of medical research are investigating in a similar way the normal and abnormal carbohydrate metabolism of man. In the fermentation we find acetoacetic acid, acetone and butyric acid, compounds which occur in the diabetic condition.

The organism is anaerobic and in carrying on this research we are helping in a small way to elucidate the problem which has puzzled plant physiologists since the time of Pasteur, namely, that of anaerobic respiration. Owing to the fact that we are endeavouring to sort out the internal processes of a bacterium our work connects up in a similar way with the investigations of medical and plant pathologists and soil bacteriologists, the latter engaged in work which is of supreme importance to agriculture.

During the past year we have been in communication with the following investigators who have desired to keep in touch with the work of the Department:—

Prof. Hans Zinnser, Prof. of Bacteriology, Columbia University.

Dr. Barnett Cohen, Yale University.

Prof. Fred, Prof. of Bacteriology, Agricultural College, University of Wisconsin.

Prof. Paine, Prof. of Plant Physiol., University College, London, England.

Dr. Northrop, Rockefeller Institute, New York.

Prof. Schmidt, Prof. of Biochemistry, University of California.

In conclusion I wish to mention briefly our plans for the coming year. The work already in progress will be continued and the following new problems started.

(1) Under the auspices of the Canadian Council for Scientific Research Mr. Berkeley is starting an investigation of the possible uses of sulphite liquor in fermentation industries. At the present time it is impossible to carry on the production of butyl alcohol in Canada, in spite of the work done in Canada, owing to the high cost of maize. In sulphite liquor we have a source of fermentable sugar which is for all practical purposes inexhaustible and, being a by-product of the paper industry, very cheap. At the present time millions of gallons are being wasted, and in the light of national conservation this is a most important problem.

(2) Mr. Robinson is continuing his investigations for the Atlas Powder Co., Ltd. This year he is enquiring into the possible use of molasses as raw material. The results obtained from the research will be available for the information of persons in the Province who may be interested, and owing to the fact that from our beet industry we have a potential source of molasses I feel that this research is important.

Anatomy Under Direction of Professor J. Playfair McMurrich.

I beg leave to present the following report on the research work carried on in the Department of Anatomy during the past year.

1. The James H. Richardson Fellow, Dr. Herbert B. Willson, undertook at my suggestion a study of the finer anatomy of the human lung. A number of studies have been made during the last fifty years or so of the minute structure of the lungs of various domestic animals, but little has been done with regard to the human lung. And, furthermore, the ultimate ramifications of the bronchi were found to be so complicated in the forms that were studied that no little difference of opinion resulted as to their exact nature. It seemed, therefore, suitable that a study of the terminal branchings of the respiratory bronchi of the human lung, carried out by modern methods, should be made. The method adopted was the wax-plate method of reconstruction, whereby a practically exact model of a portion of the lung was made at an enlargement of one hundred diameters. The work of preparing the material, making the wax plates and building up the model required much patience, energy and time, and at the close of the session the model still remained incomplete. With the cessation of class work I was able to give a good deal of time to the work and Dr. Willson voluntarily

devoted practically all his time during the summer vacation to the completion of the model. Dr. Willson is now engaged in writing up his results and at the same time is making ready for the preparation of similar models of additional material.

I may say that the work has already yielded some interesting results and will, when written up, be a meritorious contribution to our knowledge of the human lung.

2. Dr. J. Milne Dickie, a member of the staff in Oto-laryngology, also carried on in my laboratory some studies of the development of the human ear, making use of the material contained in the Embryological Collection of this Laboratory. He also used the wax-plate method of reconstruction and has prepared several models which form part of a series with which it is hoped to illustrate the development of the human ear in all its stages.

3. Dr. J. C. Watt has been obliged to devote so much of his time to undergraduate instruction, that little opportunity was afforded for investigation. Nevertheless, he found time to complete a study of an anomalous kidney which threw some light on certain modifications in position and form that that organ undergoes during development. A paper giving the results of his observations was published in a recent number of the *Anatomical Record.*

Dr. Watt was also able to make a start upon a study of the precipitation of calcium salts in colloid media, the object being to gain information as to the physico-chemical conditions which underlie the processes of bone development. He was able to devote some time to this study during vacation and hopes to be able to carry it on throughout the present session.

4. As for myself, my time during the past session was very fully occupied with teaching and executive work, so much so that I found it impossible to secure a sufficient amount of consecutive time for laboratory studies. I have, however, revised my book on "The Development of the Human Body" for its sixth edition and have made considerable progress with a study of the anatomical work of Leonardo da Vinci. I hope to complete this study during the present session.

During vacation I spent much of my spare time in assisting Dr. Willson in his work, but the preparation of a syllabus of a course of lectures and a revision of our laboratory instructions, made necessary by the new conditions introduced by the Six Years' Course, interfered with plans that I had made looking to the completion of certain studies begun several years ago, but still incomplete.

Adequate opportunity for research work can be secured for this Department only by an enlargement of its staff and this will be possible only when a transfer to more spacious quarters becomes possible.

Department of Medicine Under Direction of Dr. Duncan Graham.

Research Work and Publications.

While no great amount of research work has been accomplished in the last year owing to reorganization, a good foundation has been laid for the ensuing year in the indexing of all literature relative to infant and child nutrition for the past twenty-one years. A complete subject and author index has been compiled of 3,600 references in all languages.

With the co-operation of the Department of Pathology and Bacteriology, a thorough investigation into the cause of the disease known as "Flu" was carried out. Clinical and laboratory studies were made on cases suffering from Encephalitis Lethargica. The laboratory portion of the above investigations is still in progress and will be reported on at a later date.

The following research problems have been completed and published:—

(1) The summer's experience in Infectious Diarrhoea (a clinical and Bacteriological Study).—Edward Morgan.

(2) The effect of intravenous injection of calcium lactate on the Blood Calcium, and the benefit derived from the use of cod liver oil and phosphorus.—Roy Simpson and Alan Brown.

(3) Cod liver oil just as efficient as cod liver oil and phosphorus in increasing the blood calcium in rickets and tetany.—Roy Simpson and Alan Brown.

The following case reports and general papers have been published:—

(1) Hydro-therapy in infancy.—George Smith.

(2) A case of thrombosis of the mesenteric vein.—George Smith.

(3) Congenital atresia of the oesophagus.—George Smith.

(4) Child Health.—Alan Brown.

Sub-Department of Pediatrics.

The following is a list of research work that is in progress:

(1) Blood and urine chemistry in nephritis in children (in conjunction with Department of Pathological Chemistry), by Dr. Gladys Boyd.

(2) Sugar Tolerance in Infancy.—Gladys Boyd and Alan Brown.

(3) Blood volume in Infancy.—Edward Morgan.

(4) Further observations (chemical) on protein milk powder.—Ida McLachlin and Alan Brown.

(5) Malnutrition in older children. (A survey made possible through private contributions.)

1. To estimate amount of malnutrition in this city.
2. To demonstrate the efficiency of such clinics.
3. To indicate to the local Board of Health the best plan to adopt in coping with malnutrition in older children.—G. A. Davis and Alan Brown.

Factors not usually considered in the construction of a child's diet.—Alan Brown.

(6) Small text-book (not yet published, but ready for publication) for use of students and practitioners, entitled "Methods employed at the Hospital for Sick Children."—Alan Brown and Roy Simpson. Including foods, food values, percentages, methods of estimating percentages, etc., diets and various tests useful in the general practice of pediatrics.

(7) The interval method of feeding.—G. A. Davis and Alan Brown.

(8) Toronto as a Pediatric centre.—Alan Brown.

FACULTY OF MEDICINE.

In the Faculty of Medicine experimental research has been conducted under a special committee and the following investigations have been conducted or are at present being carried on. Publications of the results of this work may be expected within the next year.

EXPERIMENTS.

Dr. Gallie:

Clinical problems of inflammation and repair in tendon and fascea and to study the changes in these tissues after transplantation.

Drs. R. R. Graham and Detweiler:

Study of infection in the intestinal tract with special reference to etiology and reflex disturbances.

Drs. Gallie and Janes:

(1) Study of circulation in dogs testes resulting from the severance of structures of the vas and artery.

(2) The possibility of the functional result after such a procedure.

(3) The functional and cellular activity of the testes when they are placed in abnormal positions.

Drs. Gallie and Campbell:

Experiments to investigate the cause of aneura and death resulting from injury to one kidney.

Dr. Keith:

A study in Anaemia.

Dr. D. E. Robertson:

A study of intussusception and toxins formed as a result of intestinal obstruction.

Dr. L. B. Robertson:

Experiments to investigate with regard to the cause and prevention of fatal toxaemia in infants and young children, following severe burns.

School of Engineering Research.

The progress of the School of Engineering Research during the past year has been quite satisfactory and encouraging. The exceptional and abnormal conditions prevailing in undergraduate courses due to the largely increased attendance, as well as the difficulty of securing research and other assistants, prevented the carrying out, in its entirety, of the programme of the Committee of Management. However, very satisfactory results were obtained in the investigations performed in the various Departments of this Faculty, during the year, which included researches in aerodynamics and air currents; wireless operation; fuel feed in furnaces; action of caustic soda on organic substances; sewage disposal methods; rivetted connections in bridges and steel buildings and copper smelting. A Bulletin promises to surpass in importance Bulletin No. 1, which created a very favourable impression throughout this country, where it was given a rather wide circulation, and has also received considerable commendation from scientific bodies and individuals throughout America and more distant parts.

The School of Engineering Research can be said to be undergoing a steady growth promising a future of large usefulness and influence.

APPENDIX B.

(1) Enrolment in the Colleges.
(2) Enrolment in University Subjects.
(3) Registration in Courses in the Faculty of Arts.
(4) Registration for Graduate Courses.

(1) Enrolment in the Colleges.

The students in University College were enrolled as follows:

—	Greek.	Latin.	Ancient History.	English.	German.	French.	Orientals.	Ethics.
First Year—								
Pass	9	156	132	305	20	278	14	....
Honours	14	33	36	106	27	80	1	....
Second Year—								
Pass	8	35	....	201	9	148	6	....
Honours	9	9	43	33	18	36	....	....
Third Year—								
Pass	2	11	11	128	13	60	3	70
Honours	6	4	4	33	13	20	1	....
Fourth Year—								
Pass	2	4	2	68	10	36	2	24
Honours	5	3	4	24	3	10	2	....
Totals—								
Pass	21	206	145	702	52	522	25	94
Honours	34	49	87	196	61	146	4	....

The students in Victoria College were enrolled as follows:

—	Greek.	Latin.	Ancient History.	English.	German.	French.	Orientals.	Ethics.
First Year—								
Pass	2	85	45	115	7	94	18	....
Honours	9	22	30	42	16	42	....	7
Second Year—								
Pass	2	14	....	70	3	49	4	....
Honours	4	4	19	24	10	11	1	5
Third Year—								
Pass	1	3	8	91	4	27	7	54
Honours	5	3	3	12	6	10	1	4
Fourth Year—								
Pass	3	8	1	53	5	15	....	16
Honours	4	3	3	19	6	6	....	4
Totals—								
Pass	8	110	54	329	19	185	29	70
Honours	22	32	55	97	38	69	2	20

The students in Trinity College were enrolled as follows:

——	Greek.	Latin.	Ancient History.	English.	German.	French.	Orientals.	Ethics.
First Year—								
Pass....	5	35	9	36	1	30	3	....
Honours	3	5	7	5	....	6	....	....
Second Year—								
Pass	3	11	....	19	2	15	2	....
Honours	2	2	....	13	5	5	1	....
Third Year—								
Pass...............	......	3	2	13	....	7	1	9
Honours	3	3	3	2	4	3	....	1
Fourth Year—								
Pass......	......	1	2	6	3	3	....	1
Honours	2	2	2	2	....	1	....	1
Totals—								
Pass................	8	50	13	74	6	55	6	10
Honours	10	12	12	22	9	15	1	2

The students in St. Michael's College were enrolled as follows:

——	Greek.	Latin.	Ancient History.	English.	German.	French.	Philosophy.	Ethics.
First Year—								
Pass................	5	62	12	62	4	57	....	....
Honours............	1	1	1	8	1	8	2	....
Second Year—								
Pass................	3	33	....	47	4	40	12	....
Honours............	....	....	....	8	2	5	9	9
Third Year—								
Pass................	....	10	....	25	1	17	17	24
Honours............	....	....	....	4	....	4	....	....
Fourth Year—								
Pass................	3	6	....	17	2	7	8	13
Honours............	1	1	1	4	1	4	5	5
Totals—								
Pass................	11	111	12	151	11	121	37	37
Honours............	2	2	2	24	4	23	16	14

(2) Enrolment in University Subjects.

The following tables exhibit the numbers attending lectures in University subjects, together with the numbers of those taking the practical work in the laboratories:—

DEPARTMENT OF MATHEMATICS.

—	Pass.	Pass and Honours.	Honours.
Faculty of Arts—			
First Year	439	....	79
Second Year	12	....	105
Third Year	....	....	43
Fourth Year	....	....	8
Faculty of Medicine—			
First Year	12	....	....
Faculty of Applied Science—			
First Year	....	403	....
Second Year	....	169	....
Total	463	572	235

DEPARTMENT OF PHYSICS.

—	Pass.	Pass and Honours.	Honours.	Laboratory.
Faculty of Arts—				
First Year	398	....	113	113
Second Year	17	....	41	58
Third Year	5	....	38	43
Fourth Year	....	....	10	10
Graduate Students	....	....	20	14
Faculty of Medicine—				
First Year	....	421	....	421
Faculty of Forestry—				
First Year	29	....	....	29
Faculty of Household Science—				
First Year	17	....	....	17
Ontario Veterinary College Students	33	....	....	33
Total	499	421	222	738

DEPARTMENT OF BIOLOGY.

—	Pass.	Pass and Honours.	Honours.	Laboratory.
Faculty of Arts—				
First Year	399		82	82
Second Year	35		45	90
Third Year	2		20	22
Fourth Year	3		5	8
Graduate Students				5
Faculty of Medicine—				
First Year		398		398
Second Year		227		227
Faculty of Applied Science—				
Fourth Year		15		15
Faculty of Forestry—				
First Year		16		16
Total	439	656	152	863

DEPARTMENT OF BOTANY.

—	Pass.	Pass and Honours.	Honours.	Laboratory.
Faculty of Arts—				
First Year	342		78	78
Second Year	8		25	33
Third Year	6		4	10
Fourth Year			4	4
Graduate Students			17	17
Faculty of Applied Science		86		86
Faculty of Forestry—				
First Year		19		19
Second Year		5		5
Sixth Year		1		1
Ontario Veterinary College Students—				
First Year		33		33
Second Year		17		17
Total	356	161	128	303

DEPARTMENT OF CHEMISTRY.

—	Pass.	Pass and Honours.	Honours.	Laboratory.
Faculty of Arts—				
First Year	427		123	124
Second Year	47		62	104
Third Year	27		19	29
Fourth Year	4		6	10
Graduate Students				8
Faculty of Medicine—				
First Year		419		419
Faculty of Applied Science—				
First Year				85
Second Year		44		64
Third Year		73		64
Fourth Year		13		8
Faculty of Forestry—				
First Year	24			24
Second Year	11			
Second Year (Arts and Forestry)	1			1
Third Year “ “ “	2			
Ontario Veterinary College Students	33			33
Total	576	549	210	973

DEPARTMENT OF PHYSIOLOGY

—	Pass	Honours.	Laboratory.
Faculty of Arts—			
Third Year	18		18
Fourth Year	4	2	6
Graduate Students		5	
Faculty of Medicine—			
Second Year	154		154
Third Year	107		107
Ontario Veterinary College Students	25		25
Total	308	7	310

DEPARTMENT OF BIOCHEMISTRY.

—	Pass and Honours.	Honours.	Laboratory
Faculty of Arts—			
Third Year	23	27	14
Fourth Year		9	9
Graduate Students		5	4
Faculty of Medicine.—			
Second Year	232		232
Graduate Students		4	
Ontario Veterinary College Students	20		20
Total	275	45	279

DEPARTMENT OF GEOLOGY.

—	Pass.	Pass and Honours.	Honours.	Laboratory.
Faculty of Arts—				
First Year	349			
Second Year	18		17	19
Third Year	3		2	5
Fourth Year	2		5	7
Teachers' Course	5			5
Graduate Students			4	4
Faculty of Applied Science—				
Second Year		22		
Third Year		62		12
Fourth Year		38		5
Faculty of Forestry—				
Second Year		8		
Third Year		5		5
Total	377	135	28	62

DEPARTMENT OF MINERALOGY.

—	Pass.	Pass and Honours.	Honours.	Laboratory.
Faculty of Arts—				
Second Year	28	....	26	54
Third Year	6	....	19	25
Fourth Year	2	....	12	14
Graduate Students	....	....	4	4
Faculty of Applied Science—				
First Year	....	99	....	99
Second Year	....	62	....	62
Third Year	....	26	....	26
Fourth Year	....	5	....	5
Faculty of Forestry—				
Second Year	....	13	....	13
Total	36	205	61	302

DEPARTMENT OF PHILOSOPHY.

—		History of Philosophy and Metaphysics.		Psychology.		Logic.		Ethics.	
		Pass.	Honours.	Pass.	Honours.	Pass.	Honours.	Pass.	Honours.
First Year	......	......	......	......	.....	......	.....	......	15
Second Year	......	......	12	40	12	40	12	......	10
Third Year	......	42	6	......	6	......	6	85	3
Fourth Year	......	25	8	......	8	......	8	22	6
Graduate Students	16	......	......	......	.....	......	.....	......	....
Total	16	67	26	40	26	40	26	107	34

DEPARTMENT OF POLITICAL SCIENCE.

——	Pass.	Honours.
Faculty of Arts—		
Department of Political Science—		
First Year	....	17
Second Year	78	54
Third Year	107	44
Fourth Year	73	13
Graduate Students	....	17
Department of Commerce and Finance—		
First Year	....	33
Second Year	....	14
Third Year	....	4
Fourth Year	....	6
Department of Modern History—		
Second Year	....	9
Third Year	....	11
Fourth Year	....	7
Department of Philosophy—		
Third Year	6	....
Department of Household Science—		
Fourth Year	22	....
Department of Social Service—		
First Year	55	....
Department of English and History—		
Second Year	17	....
Faculty of Applied Science—		
Second Year	173	....
Occasional Students	4	4
Totals	535	233

DEPARTMENT OF HISTORY.

——	Pass.	Honours.
First Year	72	57
Second Year	145	86
Third Year	174	73
Fourth Year	122	42
Total	513	258

DEPARTMENT OF ITALIAN AND SPANISH.

	Italian.		Spanish.	
	Pass.	Honours.	Pass.	Honours.
First Year	30	6	131	63
Second Year	10	4	59	31
Third Year		3	6	4
Fourth Year		8		5
Total	40	21	196	103

DEPARTMENT OF HOUSEHOLD SCIENCE.

	General Course.	Household Science Course.	Total.
Faculty of Arts—			
First Year		15	15
Second Year		18	18
Third Year	11	29	40
Fourth Year	3	25	28
Graduate Students			3
Faculty of Education—			
Household Science Course			31
General Course			124
Summer Session			67
	14	87	326

(3) REGISTRATION IN COURSES IN THE FACULTY OF ARTS, 1919-1920.

Courses.	First Year.				Second Year.				Third Year.				Fourth Year.				Total.
	U.C.	V.C.	T.C.	M.C.	U.C.	V.C.	T.C.	M.C.	U.C.	V.C.	T.C.	M.C.	U.C.	V.C.	T.C.	M.C.	
Pass Course	248	81	38	59	99	23	17	37	67	40	9	24	35	28	4	14	823
Household Science G.C.									14	6	1	1	7	15			44
Classics	2	4	3	1	8	2	2		4	3	3		1	3	2		38
Greek and Hebrew							1										1
Orientals						1			1	1			2				5
Orientals (Greek)																	......
Moderns	42	19	1	7	21	8	3	5	14	8	2	3	10	6		4	153
English and History (Classics)	10	6			2	2			1	3			2	2			28
Eng. and Hist. (Moderns)	11	10	1	1	8	3	2	2	8	2			9	5	1		63
Modern History	2	3	1		5	5			8	2	1		3	5	1		36
Political Science	15	2			35	17	3	1	27	16	1		8	6	1		132
Commerce and Finance	27	7			11	5			3	1			4	1	1		60
Philosophy			1		3	4	5	9	2	3	1		5	2	1	5	41
Philosophy (English and History)	9	7	2	1													19
Mathematics and Physics	26	14	1		9	5	1		21	3			6	4	1		91
Natural and Physical Sciences	41	16	4	3													64
Physics									3				1				4
Biology					4				1	2							7
Biological and Phys. Sciences					2	1			3	1			3	2			12
Physiological and Biochem. Scs.					10	3			6	3			6				28
Chemistry and Mineralogy					5	2			4	3			3	3			20
Chemistry					6	2	3		8	2			2				23
Geology and Mineralogy										1			1		1		3
Household Science						1			4		2		1	1	1		10
Household Economics	7	8			8	9											32
Science for Teachers					3	1							1				5
Arts and Forestry	1					2							2				5
Total of courses taken	441	177	52	72	239	96	37	54	199	100	20	28	112	83	14	23	1,747
Total of students registered	440	175	52	72	239	96	36	54	199	100	20	28	112	83	14	23	......

(4) REGISTRATION FOR GRADUATE COURSES.

Faculty of Arts:

	M.A.	Ph.D.	Graduate
Department of Classics	1	....	2
‘‘ Oriental Languages	1	1	....
‘‘ English	9	....	3
‘‘ Romance Languages	2	1	1
‘‘ German	1	1	1
‘‘ History	5	1	....
‘‘ Political Science	9	3	4
‘‘ Philosophy	9	3	14
‘‘ Mathematics	2	....	....
‘‘ Educational Theory	10	....	9
‘‘ Physics	9	5	1
‘‘ Astronomy	2	....	....
‘‘ Chemistry	6	3	....
‘‘ Biochemistry	1	....	1
‘‘ Physiology	1	1	....
‘‘ Biology	1	3	....
‘‘ Botany	9	6	....
‘‘ Anatomy		1	....
‘‘ Geology	1	1	1
‘‘ Food Chemistry	3	....	....
‘‘ Household Science	1	....	2
‘‘ Zymology		1	1
‘‘ Pathology		1	....
‘‘ Minerology	2	....	....
‘‘ Bacteriology	1	....	....
Miscellaneous		1	....
	86	33	40

Faculty of Medicine:

	M.D.
	10
	10

APPENDIX C.

RESULTS OF EXAMINATIONS.

(1) Faculty of Arts.
(2) Faculty of Medicine.
(3) Faculty of Applied Science and Engineering.
(4) Faculty of Forestry.
(5) Faculty of Education.
(6) Faculty of Music.

(1) FACULTY OF ARTS.

Senior Matriculation.

Courses.	University of Toronto.	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	Totals.	Passed.	Starred.	Failed.	Transfer'd.	Aegrotat.	Deferred.	Debarred.
Pass,	....	69	25	10	23	127	45	41	41	....	5	....	35
Supplementals	....	1	2	....	1	4	2	2	......	....	1	....	......
Moderns	....	3	....	....	....	3	2	1	......	....	....	....	1
Eng. and Hist. (Class.)	....	1	2	....	....	3	3	......	......	1	....	....	......
Eng. and Hist. (Mod.).	....	1	2	....	....	3	2	......	1	1	....	....	......
Political Science	....	3	....	....	....	3	2	1	......	2	....	....	1
Commerce and Finance	....	2	....	....	....	2	......	1	1	....	....	....	1
Phil., Eng. and History.	....	....	1	....	....	1	......	1	......	1	....	....	1
Math. and Physics	....	1	....	....	....	1	......	1	......	....	....	....	......
Science	....	3	....	1	....	4	3	1	......	2	....	....	1
Household Economics..	....	1	....	....	....	1	1	......	......	....	....	....	......
Totals	....	85	32	11	24	152	60	49	43	7	6	....	40

First Year.

Courses.	University of Toronto.	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	Totals.	Passed.	Starred.	Failed.	Transfer'd.	Aegrotat.	Deferred.	Debarred.
Pass.	....	169	57	26	27	279	145	82	52	....	5	....	26
Supplementals	....	30	5	7	12	54	39	15	......	....	....	....	......
Classics	....	2	3	3	1	9	7	......	......	2	....	....	......
Moderns	....	37	19	1	7	64	42	8	......	14	....	....	......
Eng. and Hist. (Class.)	....	8	4	....	....	12	8	......	......	4	....	....	......
Eng. and Hist. (Mod.),	....	8	8	2	1	19	12	......	......	7	....	....	......
Modern History	....	1	2	1	....	4	2	......	......	2	....	....	......
Political Science	....	10	2	....	....	12	9	1	......	2	....	....	......
Commerce and Finance	....	22	7	....	....	29	14	1	1	13	1	....	......
Philosophy,	....	....	....	1	....	1	......	......	......	1	....	....	......
Phil., Eng. and History.	....	9	5	2	1	17	16	1	......	....	....	....	......
Math. and Physics	....	21	13	1	....	35	20	5	......	10	1	2	2
Science	....	38	16	3	3	60	48	7	......	5	....	1	1
Household Economics.,	....	6	8	....	....	14	12	2	......	....	1	....	......
Arts and Forestry	....	1	....	....	....	1	......	1	......	....	....	....	......
Occasional	33	7	1	....	2	43	15	3	25	....	....	....	......
Teachers'	8	....	....	....	....	8	6	......	2	....	....	....	......
Totals	41	369	150	47	54	661	395	126	80	60	8	3	29

Second Year.

Courses.	University of Toronto.	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. Michael's College	Totals.	Passed.	Starred.	Failed.	Transfer'd.	Aegrotat.	Deferred.	Debarred.
Pass		96	22	15	31	164	81	60	23		5		39
Supplementals		25	6	1	7	39	29	10					
Classics		8	2	1		11	10			1			
Greek and Hebrew				1		1	1						
Orientals			1			1	1						
Orientals (Greek)		1				1	1						
Moderns		20	8	2	5	35	22	10		3			
English and History (Cl.)		2	2	1		5	4			1			
English and History (Mod.)		8	3	2	2	15	13			2	1		1
Modern History		5	4			9	9						
Political Science		33	17	3	1	54	41	4	5	4	3		5
Commerce and Finance		9	3			12	3	6	2	1		3	4
Philosophy		2	4	5	9	20	18	2			1		2
Mathematics and Physics		9	5	1		15	13	2				1	1
Physics		1				1		1				1	1
Biology		3				3	2		1				
Biological and Physical Scs		1	1			2	1		1				
Physiol. and Biochem. Scs		5				5	4	1					
Chemistry and Mineralogy		4	1			5	5						
Chemistry		3	1	3		7	6			1			
Geology and Mineralogy													
Household Science			1			1	1						
Household Economics		4	7			11	6	5				1	1
Science for Teachers		1	1			2		2					
Arts and Forestry		1	2			3		1	2				
Occasionals	30	5				35	17		18				
Teachers	20					20	11	9					
Totals	50	246	91	35	55	477	299	113	52	13	10	6	54

Third Year.

Courses.	University of Toronto.	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. Michael's College.	Totals.	Passed.	Granted standing on Active Serv.	Starred.	Failed.	Transferred	Aegrotat.	Deferred.	Debarred.
Pass		67	46	7	23	143	91	9	37	6		1		25
Supplementals		15	4		3	22	19		3					
House. Science (Gen. Course)		14	6	1	1	22	14		8					4
Classics		4	2	3		9	9					3		
Orientals		1	1			2	1		1					
Moderns		12	6	2	3	23	21		2			1		
English and History (Cl.)		1	3			4	4							
English and History (Mod.)		7	2			9	9							
Modern History		8	3	1		12	11	1						
Political Science		27	16	1		44	37	1	5	1		1		
Commerce and Finance		3	1			4	4							
Philosophy		3	3	1		7	6	1						
Mathematics and Physics		20	4			24	20		4					
Physics		3				3	3							
Biology		1	2			3	3							
Biological and Physical Scs.		3	1			4	4							
Physiol. and Biochem. Scs.		6	3			9	9							
Chemistry and Mineralogy I		5	2			7	6	1						
Chemistry and Mineralogy II			2			2	1	1						
Chemistry		8	2			10	8		2					
Geology and Mineralogy			1			1	1							
Household Science		3		2		5	3		2					
Science for Teachers		1				1	1							
Occasionals		5	3	1		9	7			2				
Teachers	18					18	16		1	1				
Totals	18	217	113	19	30	397	308	14	65	10		6		29

Fourth Year.

Courses.	University of Toronto.	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. Michael's College.	Totals.	Passed.	Granted standing on Active Service.	Starred.	Failed.	Aegrotat.	Deferred.	Transferred.	Pass Deg.
Pass	....	43	34	5	13	95	55	16	22	2	1	....	..	..
Supplementals	....	4	....	....	1	5	4	....	1	....	1	....	..	..
Household Science (Gen. C.)	....	7	15	....	....	22	19	....	2	1	1	....	..	..
Classics	....	1	3	2	....	6	6	....	....	....	....	....	..	..
Orientals	....	1	....	....	....	1	1	....	....	....	....	....	..	..
Orientals (Greek)	....	1	....	....	....	1	....	....	1	....	....	....	..	..
Moderns	....	10	6	....	4	20	20	....	....	....	1	....	..	2
English and History (Clas.)	....	3	4	....	....	7	4	3	....	....	1	....	..	..
English and History (Mod.)	....	10	5	1	....	16	15	1	....	....	....	....	..	..
Modern History	....	4	5	1	....	10	9	1	....	....	2	....	..	..
Political Science	....	13	6	1	....	20	12	7	1	....	1	....	..	..
Commerce and Finance	....	4	2	1	....	7	6	1	....	....	....	....	..	..
Philosophy	....	5	4	2	5	16	12	4	....	....	1	....	..	..
Mathematics and Physics I.	....	5	2	....	....	7	1	5	1	....	....	....	..	..
Mathematics and Physics II.	....	5	3	1	....	9	4	2	3	....	....	1	..	..
Physics	....	3	....	....	....	3	1	2	....	....	....	....	..	..
Biological and Physical Scs.	....	2	2	....	....	4	3	....	1	....	1	....	..	..
Phys. and Biochem. Scs.	....	7	1	....	....	8	6	2	....	....	....	....	..	..
Chem. and Mineralogy I.	....	2	2	....	....	4	4	....	....	....	....	....	..	..
Chem. and Mineralogy II.	....	1	1	....	....	2	1	....	1	....	....	....	..	..
Chemistry	....	1	....	....	....	1	1	....	....	....	....	....	..	..
Geology and Mineralogy	....	1	....	1	....	2	1	....	1	....	....	....	..	..
Household Science	....	1	1	1	....	3	2	....	1	....	....	....	..	..
Science for Teachers	....	1	....	....	....	1	....	....	1	....	....	....	..	..
Arts and Forestry	....	2	....	....	....	2	....	....	2	....	....	....	..	..
Occasional	....	1	1	1	....	3	3	....	....	....	....	....	..	..
Totals	....	138	97	17	23	275	190	44	38	3	10	1	..	2

(2) FACULTY OF MEDICINE.

—	Passed.	Starred.	Failed.
First Year (Five Years' Course)	144	32	45
First Year (Six Years' Course)	84	35	35
Second Year	154	61	12
Third Year	107	64	11
Fourth Year	97	30	3
Fifth Year	61	23	4

(3) FACULTY OF APPLIED SCIENCE.

—	Passed with Honours.	Passed.	Starred.	Failed.
First Year:				
General	62	195	103	24
Chemical Engineering	34	47	24	1
Architecture	4	8	4	1
Second Year:				
Civil Engineering	6	24	14	3
Mining Engineering	3	15	6	1
Mechanical Engineering	5	24	12	1
Architecture	1	2	1	....
Chemical Engineering	10	28	10	2
Electrical Engineering	10	26	10	....
Metallurgical Engineering	1	2	1	....
Third Year:				
Civil Engineering	11	24	8	....
Mining Engineering	2	10	6	....
Mechanical Engineering	7	20	8	2
Architecture	3	6	3	1
Analytical and Applied Chemistry	9	6	3	....
Chemical Engineering	2	8	3	....
Electrical Engineering	9	14	5	2
Metallurgical Engineering	1	2	1	....
Fourth Year:				
Civil Engineering	15	19	....	....
Mining Engineering	....	5	....	....
Mechanical Engineering	7	8	....	....
Architecture	3	1	....	....
Analytical and Applied Chemistry	2	2	....	....
Chemical Engineering	1	4	....	....
Electrical Engineering	14	11	1	....
Metallurgical Engineering	1	....	....	....

(4) FACULTY OF FORESTRY.

—	Passed.	Honours Deferred.	Failed.
First Year	5	9	4
Second Year	10	2	3
Third Year	1	4	2
Fourth Year	2	....	....
Fifth Year	....	1	....
Sixth Year	....	1	....

(5) FACULTY OF EDUCATION.

——	Passed.	Failed.
First-Class Grade B Course	232	....
First-Class Grade A Course	4	....
High School Assistants' Course	77	....
*Specialists	40	....
Household Science	25	....
Bachelor of Pedagogy (passed in part)	4	....
Doctor of Pedagogy	2	....
Doctor of Pedagogy (passed in part)	12	....
Number who failed in whole or part	....	11

* Many of these are included among those who passed in the High School Assistants' Course.

(6) FACULTY OF MUSIC.

—	Passed.	Starred.	Failed.
Bachelor of Music:			
First Year	6	....	....
Second Year	1	2	....
	7	2	....
Local Examinations:	514	....	66

APPENDIX D.

GEOGRAPHICAL DISTRIBUTION OF STUDENTS.

The geographical distribution of students is as follows:

FACULTY OF ARTS.

——	University of Toronto.	University College.	Victoria College.	Trinity College.	St. Michael's College.	Total
Ontario: (1) Province	43	566	326	86	83	1,104
(2) Toronto	60	403	114	27	89	693
Nova Scotia	3	7	....	....	1	11
New Brunswick	....	5	3	....	....	8
Prince Edward Island	....	1	....	....	....	1
Quebec	2	3	2	1	2	10
Manitoba	8	2	3	1	....	14
Saskatchewan	9	11	21	1	....	42
Alberta	2	7	3	1	....	13
British Columbia	2	12	7	2	....	23
Yukon Territory	....	1	....	....	....	1
United States	11	9	3	2	8	33
Elsewhere	9	7	18	2	2	38
Duplicate registrations	....	....	....	....	....	2
Totals	149	1,034	500	123	185	1,989

SUMMARY.

——	Faculty of Arts.	Graduate Studies.	Faculty of Medicine.	Faculty of Applied Science.	Faculty of Education	Faculty of Forestry.	Faculty of Music.	Department of Social Service.	Returned Soldiers' Matric. Class.	Totals.
Ontario:										
(1) Province	1,104	66	716	471	320	19	7	168	78	2,949
(2) Toronto	693	80	412	299	84	18	11	151	80	1,828
Nova Scotia	11	2	5	2	......	1	......	10	....	31
New Brunswick	8	1	2	2	......	2	......	5	1	21
Prince Edward Island	1	1	1	......	......	......	......	......	....	3
Quebec	10	......	10	4	2	1	......	6	2	35
Manitoba	14	......	21	3	2	1	1	......	....	42
Saskatchewan	42	2	39	8	5	......	......	......	1	97
Alberta	13	3	13	13	4	......	......	2	2	50
British Columbia	23	4	36	9	3	5	......	4	2	86
Yukon	1	......	2	......	......	......	......	......	....	3
United States	33	7	13	4	1	......	1	3	2	64
Elsewhere	38	3	14	4	2	1	......	6	4	72
Duplicate registrations	2	......	......	......	......	......	......	......	....	44
Totals	1,989	169	1,284	819	423	48	20	355	172	5,237

The students from the Province of Ontario are distributed as follows:

County.	Faculty of Arts.	Graduate Studies.	Faculty of Medicine.	Faculty of Applied Science.	Faculty of Education.	Faculty of Forestry.	Faculty of Music.	Department of Social Service.	Returned Soldiers' Matric. Class.	Totals.
Algoma	13	......	4	3	......	......	......	2	2	24
Brant	39	......	19	19	8	......	......	2	3	90
Bruce	28	2	23	15	12	......	......	9	7	96
Carleton	57	3	20	11	6	3	......	3	5	108
Dufferin	7	......	9	3	2	......	......	3	2	26
Dundas	12	1	3	2	4	1	......	1	....	24
Durham	8	1	11	5	8	......	......	6	2	41
Elgin	17	1	16	9	6	......	1	6	....	56
Essex	32	......	21	7	6	......	......	1	1	68
Frontenac	3	......	8	......	1	......	1	1	....	14
Glengarry	3	1	4	......	......	......	......	1	....	9
Grenville	5	1	3	3	2	......	......	......	....	14
Grey	30	3	29	17	9	......	......	4	1	93
Haldimand	16	1	13	8	8	......	......	2	1	49
Halton	20	3	10	9	4	......	1	6	4	57
Hastings	19	1	17	6	1	......	......	1	....	45
Huron	51	4	20	17	28	1	......	2	2	125
Kenora	2	......	5	1	......	......	......	......	....	8
Kent	21	......	23	7	6	......	1	......	....	58
Lambton	21	......	24	11	5	1	......	5	....	67
Lanark	15	2	10	6	7	2	......	4	....	46
Leeds	21	1	15	3	4	1	......	3	....	48
Lennox and Addington	11	1	7	1	1	......	......	1	....	22
Lincoln	20	3	19	8	7	......	......	6	1	64
Manitoulin	1	......	4	......	......	......	......	......	....	5
Middlesex	44	6	13	24	24	......	......	8	2	121
Muskoka	3	......	3	5	......	1	......	2	....	14
Nipissing	8	......	4	5	2	......	......	1	3	23
Norfolk	10	2	6	9	3	......	......	4	2	36
Northumberland	20	......	9	2	4	......	......	3	1	39
Ontario	41	5	22	25	7	......	......	8	4	112
Oxford	27	2	28	11	8	......	......	3	....	79
Parry Sound	3	......	6	2	......	......	......	1	....	12
Peel	31	1	17	12	5	2	......	4	....	72
Perth	51	......	37	20	20	1	1	3	2	135
Peterborough	34	1	10	5	4	......	......	10	2	66
Prescott	1	......	......	1	2	......	......	......	....	4
Prince Edward	4	......	4	2	4	......	......	......	....	14
Renfrew	17	......	4	2	1	1	......	1	1	27
Russell	1	......	3	......	2	......	......	......	....	6
Simcoe	68	4	48	27	20	......	1	9	12	189
Stormont	6	......	3	1	3	......	......	......	....	13
Sudbury	3	......	4	2	......	1	......	......	....	10
Thunder Bay	6	......	3	2	1	......	......	1	2	15
Temiskaming	4	......	2	3	......	......	......	......	2	11
Victoria	15	3	15	12	10	......	......	1	....	56
Waterloo	22	1	16	28	8	......	......	6	....	81
Welland	21	1	25	13	2	......	......	2	....	64
Wellington	53	7	46	9	17	1	......	8	1	142
Wentworth	77	3	15	33	26	1	1	10	3	169
York	62	1	36	45	12	2	......	14	10	182
Toronto	693	80	412	299	84	18	11	151	80	1,828
Totals	1,797	146	1,128	770	404	37	18	319	158	4,777

APPENDIX E.

Publications by Members of the Staff.

Faculty of Arts.

Department of Astrophysics.

Chant, C. A. (In conjunction with F. W. Merchant).—" Mechanics for the Upper School." (318 pages. Copp, Clark Co.)

Department of Biochemistry.

Voegtlin, C., Neill, M. H., Hunter, A.—" The Influence of Vitamines on the Course of Pellagra." (Bull. No. 116, Hyg. Lab., U.S. Public Health Service, Washington, January, 1920.)

Hunter, A.—" Some Problems of the Fox-Raising Industry." (Bull. No. 8, Council for Sci. and Ind. Res., Ottawa, 1920.)

Hunter, A. and Ward, F. W.—" Comparative Studies of Purine Metabolism in various Representative Mammals." (Trans. Roy. Soc. of Can., Vol. XIII, Section V, p. 7, 1919.)

Department of Biology.

Clemens, W. A.—" The Muttonfish." (Bulletin 4 of the Biological Board of Canada, 1920.)

Craigie, E. H.—" On the Relative Vascularity of Various Parts of the Central Nervous System of the Albino Rat." (Journal of Comparative Neurology, Vol. 31, No. 5, June 15, 1920.)

Huntsman, A. G.—" Lakes and Fishes." (Canad. Fisherman, Vol. VI, 1919.)

" Research and the Fishing Industry." (Canad. Fisherman, Vol. VI, 1919.)

" Variation of Fishes according to Latitude." (Science, N.S., Vol. L, 1919.)

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